

Siting Epidemic Disease: 3 Centuries of American History

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Epidemics of infectious disease have always played a role in American history, and such epidemics are sited in time and place and configured in terms of ecology and demography, available medical knowledge, and cultural values and collective experience. The mix of these variables has changed dramatically since the theocratic world of 17th-century New England, but the relevance of each remains. Avian influenza already exists virtually in Western society in terms of planning, global networks, laboratory research, social expectations, media representations, and a specific shared history based on the memory of the 1918 influenza pandemic.

Infectious disease has always been a presence in Anglo-American North America, from the dysentery and fevers in 17th-century settlements to the smallpox and diphtheria of the early 18th century, the yellow fever and cholera of the late 18th and 19th centuries, and the polio and influenza of the 20th century. As is well known, settlement by Europeans in the 17th century was facilitated by epidemics that swept through the Atlantic coast's Native American populations [1].

The proportion of infectious diseases experienced as epidemics has always had a special visibility and cultural salience. Unlike illnesses such as tuberculosis and malaria, which killed and disabled every year but which seemed to be among the unavoidable and, thus, endurable conditions of life, epidemic disease was by definition episodic, unpredictable, and frightening and, thus, highly visible. Today, when we refer to an epidemic of traffic fatalities, drug use, or even obesity and adult-

onset diabetes, we use the term metaphorically and rhetorically to invoke a sense of urgency and to mobilize collective social action. I am using the term "epidemic" in its root sense—that is, referring to the incidence of an acute infectious disease. Such epidemics are sited in time and place and configured in terms of ecology and demography, available medical knowledge, and cultural values and collective experience.

Some examples might help to explain how these factors are configured to constitute a particular epidemic. Perhaps the most dismaying of 18th-century epidemics in America was the outbreak of diphtheria that swept through small towns and villages in northern New England in the 1730s. By targeting children and ill-fated families in rural New Hampshire and Massachusetts, the epidemic had an extraordinary impact. From an epidemiological point of view, this outbreak of diphtheria—like the recurring and frightening epidemics of smallpox that struck colonial New England—was a phenomenon created by an isolated, dispersed, and susceptible population. Illnesses that were endemic in London could become epidemic and startlingly fatal in New England: "In some of the towns nearly half of all the children died, and at times it was feared that the disease would actually destroy the colonies" [2, pp. 1–2]. From a medical point of view, the conceptual tools for understanding the epidemic were traditional and flexible enough to provide an all-purpose framework of explanation: a disordered humoral pathology in predisposed

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bodies was linked to local epidemic influences. The apparent inability of physicians to manage the disease hardly demanded explanation; some illnesses in some bodies at certain times were necessarily fatal.

The cultural framing of the disease was paramount: experience and piety made sense of the throat distemper. Epidemics with frightening mortality rates were still a very real phenomenon in New England's collective memory. An epidemic of bubonic plague had devastated London in the 1660s (and might have been experienced by the grandparents or even the parents of those suffering through the diphtheria epidemic); in 1721, plague had been a scourge in Marseilles, and, closer to home, smallpox had terrified Boston. However, even more important than this shared memory of fear and sudden death was the framework of religious belief. The meaning of the disease was understood primarily in terms of the colonists' relationship to God. Why had the Lord so chastised New England? There were no accidents or randomness in a world in which ultimate meaning was found in an individual's or a community's relationship to an infinitely knowing but unknowable being. Epidemics were clues that demanded a collective explanation in terms of that transcendent relationship. Sermons, fasting, and private prayer were the necessary and proper responses.

Yellow fever and cholera were the great killers during the years between the American Revolution and the Civil War, not in terms of absolute numbers of deaths but in terms of their impact on society and their ability to stimulate response in a variety of cultural and social dimensions [3]. Both yellow fever and cholera were spread in ways that were thought to be elusive. No one doubted that smallpox and venereal disease were contagious through contact, but these illnesses seemed to be isolated and atypical examples of person-to-person spread. On the other hand, such chains of infection were hard to demonstrate for either yellow fever or cholera; yet, both seemed somehow "portable." Both yellow fever and cholera seemed to be connected to trade and to the growing number of human beings and ships moving from place to place in connection with trade—what we might characterize, in retrospect, as a type of protoglobalization. Immigration and the growth of cities provided another potential source of spread, since both yellow fever and cholera seemed most dangerous and concentrated in urban areas. In cities such as New York, Boston, and Philadelphia and later St. Louis and Cincinnati, America's cadre of elite physicians and public intellectuals debated theories of causation and modes of prevention. In retrospect, this period of what one historian of public health has called the "era of great epidemics" [3, 4] would appear to be an era of transition, in which speed of transportation, economic growth, and urbanization created conditions that enabled the spread of pandemic illness.

The physician's analytical tools were limited. Spot maps from

the 1790s were used in attempts to pinpoint the spread of yellow fever, and, during the first half of the 19th century, physicians used a variety of methods in their search to make sense of the erratic pattern of cases of yellow fever and cholera. Germ theory was a half century into the future. Authorities agreed that environmental filth and presumed atmospheric contamination played a role in causing such frightening ailments; yet, even those who foregrounded local causes and disdained the notion of person-to-person contagion had to concede that a portable "something" was correlated with the arrival of ships from disease-ridden ports and subsequent epidemic outbreaks. Despite such inconclusive debates about disease etiology, yellow fever nevertheless receded from the northern United States. After the early 1820s, it disappeared from port cities such as New York, Philadelphia, and Baltimore and became a regional epidemic. The last large outbreak occurred in the Gulf Coast and the Mississippi Valley in 1879. Thus, an epidemic's siting could change through local environmental and climatic change, without a change in the technical base of medicine. The occurrence and prevalence of malaria also shifted in prebellum America: malaria at first was widespread and then transitioned into an endemic epidemic in newly settled bottomland and subsided with continued agricultural development [5, 6].

Religion remained an important but less all-encompassing framework for understanding these outbreaks. The religious response to cholera during the early 1830s was intense, a reflection of a growing prebellum evangelicalism. However, after the end of the Civil War, the response to the threatening and then real cholera epidemic of 1866 indicated a growing secularism and the beginnings of an administrative capacity to deal with such threats, as I have argued elsewhere [5, 7]. Medicine also had new intellectual tools at its disposal. Well-informed physicians were now aware that cholera was likely spread through human waste and the water supply. Of equal significance, urban governments and, later, international bodies could begin to address the problem of epidemic illness, especially plague and cholera [8].

Still, it would be another 2 generations before an approximation of today's modern public health administration—based in part on bacteriological diagnosis and the enforcement of policies such as isolation and mandatory case reporting—was in place in the United States. Nevertheless, the era of great epidemics was subsiding. (I am not addressing the complex issues involved in the weighing and disaggregation of the factors responsible for the epidemiological transition away from infectious disease. Contemporaries may have given too much credit to nascent public health measures and too little credit to more-general factors associated with economic growth.) Besides the occasional recurrence of yellow fever (as in 1879), there were very few parallels to the devastation caused by yellow

fever in Philadelphia in 1793 or by cholera in New York and Cincinnati in 1832. A cholera scare occurred in 1892 but, significantly, did not turn into a general outbreak, and there were frightening epidemics of plague in San Francisco and Honolulu at the turn of the century, polio in New York in 1916, and, of course, pandemic influenza in the aftermath of World War I. With these few exceptions, however, the experience of fear and death became increasingly historical as the 20th century progressed—a trend highlighted in midcentury by the practical and symbolic impact of sulfa drugs and antibiotics.

Nevertheless, the term “epidemic” remained a powerful rhetorical resource throughout the 20th century, even though it was distanced from its historical roots in relation to the experience of acute infectious disease. We have lived through epidemics of cocaine and crack, traffic accidents, obesity, asthma, osteoporosis, and adult-onset diabetes. Despite or perhaps because of this lack of a precise definition, invoking the term “epidemic” still mobilizes social action and consumer behavior.

From the historian’s particular point of view, epidemics and the prospect of epidemics represent a natural experiment, a kind of strength-of-materials test for the precise relationships among society’s social values, technical understanding, and capacity for public and private response. In this sense, I have referred to epidemics as sampling devices that enable us to see, at one moment in time, the configuration of values and attitudes that, in less-stressful times, are so fragmented or so taken for granted that they are not easily visible. The brief but revealing history of AIDS, for example, has forcefully highlighted this analytical potential. The spread of AIDS illustrates the way in which its components—namely, technical understanding and available therapeutic options, epidemiological contours, policy responses, and cultural values—have intersected in ever-changing patterns. In this sense, AIDS was configured very differently—both socially and biologically—in 1983, in 1993, and in 2003.

Recent alarms over severe acute respiratory syndrome and avian influenza have already provided a similarly revealing history. Avian influenza already exists virtually in Western social space, in terms of planning, laboratory research, social expectations, media representations, and a specific structuring history based on the collective memory of the 1918 influenza pandemic. Until the emergence of AIDS, influenza was Western society’s last great pandemic. The influenza pandemic undercut a growing confidence in the ability of laboratory-based medicine to control infectious disease, and it seemed to affect victims irrespective of social class and, as collective memory emphasizes, killed primarily the young and healthy, unlike typical influenza. Parallel and linked fears of emergent viruses in gen-

eral and of bioterrorism provide a less-specific but nevertheless resonant context for anticipating avian influenza.

This virtual epidemic has mirrored our fears, stoked our xenophobia about non-Western societies being alien and dangerous, and created a context for questioning the government and its appropriate responsibilities and particular policies. We have not declared any days of fasting and prayer, but we do have our own rituals of invocation, propitiation, and jeremiad. Academic conferences and panels affirm the vital link between the university and the role of experts in public policy in facing an existential threat—something that our 18th- and 19th-century predecessors could not have anticipated. It is an occasion to balance faith in the laboratory’s power with anxieties about anticipated failures in public policy and ambivalence about the perhaps ironic fruits of global economic relationships, as well as the diversity and inequality associated with such economic growth. Contemporary experts link not God and humanity but the reassurance of a credentialed rationality and the larger community. Epidemics have always been a mirror for social thought and plausible action—a way of thinking about the way we live—and they remain so.

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