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The Influence of Anxiety: September 11, Bioterrorism, and American Public Health

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Abstract. Contemporary American responses to the threat of bioterrorism represent a mixture of familiar and novel themes in the history of public health. As in previous eras, bioterrorism preparedness raises questions about microbial transgression of borders, civil liberties, and the place of biomedical and surveillance technology in public health. However, bioterrorism also presents an historically specific assemblage of risks and responses, illustrating larger changes in the contours of American public health and its place in global society. More historical inquiry into bioterrorism is urged. ***Keywords:*** bioterrorism, biological weapons, public health, infectious disease, historiography, surveillance, biotechnology.

ONE of the less obvious casualties of the September 11 attacks has been a proper sense of history. The assumption that this event was sui generis, unfettered by context or precedent, has become an unassailable justification for American foreign and domestic policy. Endlessly repeated, the cliché that "the world changed that day" threatens to become consecrated as historical fact. Attempts to counter this sanctification of historical novelty have been decried as inappropriate and unpatriotic.

Did the world really change that day? Historians, now and for the foreseeable future, will have to assess the veracity and the consequences of this truism. It will not be an easy task. Yet we must do so, because understanding the context of and precedents for these events is a necessary component of understanding their causes and consequences. That considerable political and institutional interests are arrayed against this sort of analysis only makes it more vital. We must also do so because the axiom of historical exceptionalism threatens to hijack our understanding of related issues.

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One such topic is bioterrorism. Although often conflated with the attacks on the World Trade Center and the Pentagon, the anthrax outbreak in the eastern United States that followed was a separate event, and American responses to it have a considerable historical lineage. Long before last September, American scientists and public health experts were using the threat of novel diseases, both natural and human-created, as a rationale for making changes in public health. On a deeper level, contemporary responses to the threat of bioterrorism occur within an institutional framework, and draw on a repertoire of metaphors, images, and values that have been shaped by historical forces far older and more complicated than this single outbreak.

Historians can and must shed light on the origins and implications of current events, forcefully elucidating how the world did *not* change last September.[1] But these events also afford us the opportunity to evaluate our own assumptions and methods, most importantly the manner in which we evaluate continuity and change. Naturally suspicious of the claim to novelty, historians might be excused for seeing only echoes of the past in present events. But the events of the past year also illustrate changes that predate September 11, even though their lineage may be measured in years rather than decades. Forty years ago, Charles Rosenberg observed that cholera epidemics give us a peculiar window into the social and scientific worlds of the mid-nineteenth century.[2] The same is true now. September 11 and its aftermath cast in sharp relief the contours of American anxiety, and the constellations of American institutions and interests, peculiar to the late twentieth and early twenty-first centuries.

CONTINUITIES

Bioterrorism—the threat itself, the anxiety that it generates, the responses that it engenders—exemplifies the juxtaposition of historical change and continuity. It is tempting to regard the current fascination with this issue as a direct result of the 2001 anthrax outbreak. But American scientists and policymakers have advocated bioterrorism

1. For examples of engaged scholarship of this sort, see Allan M. Brandt, "AIDS in Historical Perspective: Four Lessons from the History of Sexually Transmitted Diseases," *Am. J. Public Health*, 1988, *78*, 367–71; Nancy Tomes, "The Making of a Germ Panic, Then and Now," *Am. J. Public Health*, 2000, *90*, 191–98.

2. Charles E. Rosenberg, *The Cholera Years: The United States in 1832, 1849, and 1866* (Chicago: University of Chicago Press, 1962[1987]).

preparedness for at least a decade, establishing the rhetorical and institutional parameters of the current debate. Beyond that, and most pertinent for historians of medicine and public health, American concerns regarding bioterrorism are part of a longer history of fears about disease more generally. As in earlier eras, American concerns about global social change are refracted through the lens of infectious disease. But the resulting spectrum is notably different from its predecessors.

Biological *weapons* have generated fear for some time. They were first deemed abhorrent in 1925, when forty nations signed the Geneva Protocol prohibiting their initial use.[3] American fears of their development, first by Germany during World War II and then by the Soviet Union during the Cold War, have justified "offensive" and "defensive" research programs since George Merck became the first director of the secret biological weapons program with the innocuous title of "War Research Service" in 1941.[4] Noted biomedical researchers, including Nobel Laureates MacFarlane Burnet, René Dubos, and Joshua Lederberg, have joined the public debate over biological weapons since the early postwar era, in some cases advising on or participating in weapons-related research as well.[5]

Bioterrorism also taps into more diffuse but no less powerful social anxieties. From cholera to HIV/AIDS to the West Nile Virus, Americans have long regarded infectious disease with dread, and the bioterrorist resembles two figures familiar to historians of American public health: the carrier and "patient zero." Like Typhoid Mary and Gaetan Dugas before him, he (for the bioterrorist is generally characterized

3. This treaty, negotiated after chemical weapons killed or injured over a million soldiers and civilians in World War I, proscribed the initial use of chemical and biological weapons, but did not prohibit research, development, or stockpiling of these arms, and a number of signatories reserved the right to retaliate in kind. The United States signed but not ratify this treaty until 1975.

4. Two informative sources on the early history of the United States BW program are: Barton J. Bernstein, "Origins of the U.S. Biological Warfare Program," in *Preventing a Biological Arms Race*, ed. Susan Wright (Cambridge: MIT Press, 1990); and G. W. Christopher et al., "Biological Warfare: A Historical Perspective," *J. Am. Med. Assoc.*, 1997, *278*, 412–17.

5. Dubos apparently conducted research on biological weapons during the 1960s; see Gerard J. Fitzgerald, "René Dubos in the Library with a Candlestick," *Recent Science Newsletter*, 2000, *2*. Burnet includes a lengthy discussion of biological weapons in *Biological Aspects of Infectious Disease* (New York: Macmillan, 1940). Lederberg, deeply concerned about biological weapons for a number of decades, had been active in public debate over international weapons conventions since the nineteen-sixties. Among his recent publications, see Joshua Lederberg, ed., *Biological Weapons: Limiting the Threat* (Cambridge: MIT Press, 1999). I am indebted to Warwick Anderson for the Burnet reference.

as male) personifies difference, transgression, and contamination.[6] Covertly transporting deadly germs into the United States, this culpable foreigner exposes the increasing permeability of national borders and the vulnerability of American citizens in an increasingly interconnected world.

Proposed responses to bioterrorism have similar historical analogs. In the past, outbreaks of epidemic disease have sometimes led to the curtailment of civil liberties, from compulsory vaccination and treatment to detention and isolation of those deemed threatening to the public's health. As Alan Kraut, Barron Lerner, and Judith Walzer Leavitt have ably demonstrated, the brunt of such restrictions have frequently been borne by the poor and socially marginalized, and protection of public health has often been conflated with attempts to maintain social order and control "difficult" populations.[7] Recent recommendations have similarly sought to balance civil liberties with public health. One controversial piece of model legislation, prepared for the Centers for Disease Control and Prevention (CDC), expands the state's power to seize hospitals and private property; compel vaccination and treatment of individuals; and quarantine those who refuse medical examination, testing, vaccination, or treatment.[8]

Current recommendations also display a familiar faith that technological fixes will obviate the need for social or political remedies. Since the early 1990s, American public health and national security experts have published recommendations regarding appropriate forms of bioterrorism preparedness.[9] Despite some disagreement over distribution of funds, two assumptions have almost unqualified support: first, that

6. Mary Mallon, popularly known as "Typhoid Mary," was an Irish cook incarcerated for more than twenty years in the early twentieth century after repeatedly refusing to cooperate with New York public health authorities. Gaetan Dugas, the archetypal "patient zero," was a Canadian flight attendant whom author Randy Shilts held responsible for spreading the HIV virus across North America during the 1980s. Judith Walzer Leavitt, *Typhoid Mary: Captive to the Public's Health* (Boston: Beacon Press, 1996); Randy Shilts, *And the Band Played On* (New York: Viking, 1988).

7. Alan M. Kraut, *Silent Travelers: Germs, Genes, and the "Immigrant Menace"* (Baltimore: Johns Hopkins University Press, 1994); Barron H. Lerner, "Tuberculosis in Seattle, 1949–1973: Balancing Public Health and Civil Liberties," *West. J. Med.*, 1999, *171*, 44–49; Leavitt, *Typhoid Mary.*

8. I refer here to "The Model State Emergency Health Powers Act," prepared by The Center for Law and the Public's Health at Georgetown and Johns Hopkins Universities, and available at http://www.publichealthlaw.net/MSEHPA/MSEHPA.pdf.

9. The semantic shift—from public health "prevention" to bioterrorism "preparedness"—is noteworthy. These issues are discussed in chapter four of my doctoral dissertation. Nicholas Benjamin King, "Infectious Disease in a World of Goods" (Department of the History of Science, Harvard University, 2001).

bioterrorism preparedness depends on investment in basic research in the molecular sciences, pharmaceutical development, and epidemiological surveillance networks; second, that the methods and goals of such preparedness and wider public health prevention are synonymous.

For historians, the tone of these recommendations is immediately recognizable. Flush with the promise of the bacteriological revolution, early twentieth-century American public health began to turn its attention and funding from broad preventive measures toward clinical medicine, laboratory science, and the early detection of disease. As a number of historians have argued, the subsequent redirection of funding from public health toward biomedical research contributed to the abandonment of social and structural remedies, and the eventual dismantling of the public health infrastructure in the 1980s under the pressure of Reagan-era budgetary constraints.[10]

The rhetorical and institutional equation of national security with public health is also hardly novel.[11] The U.S. Public Health Service's flagship institution, the CDC in Atlanta, Georgia, was established (as the "Malaria Control in War Areas") in 1942 as a "Sentinel for Health" to investigate and control infections among soldiers, and "to keep malaria from spreading to the armed forces from its reservoir in the civilian population."[12] Its Epidemic Intelligence Service (EIS), established in 1951 to "investigate outbreaks of disease in strategic areas," has long served as an invaluable arena for training scientists and epidemiologists.[13] In 1999, one CDC official argued in the journal

10. There is some controversy over the "narrowing hypothesis" in public health. A number of historians have argued that the bacteriological revolution led public health to narrow its focus to laboratory science and the efficient location, identification, and eradication of germs, while others contend that public health has maintained a broad social focus throughout the century. See, among others, Barbara Rosenkrantz, "'Cart before Horse': Theory, Practice, and Professional Image in American Public Health, 1870–1920," *J. Hist. Med. Allied Sci.*, 1974, *29*, 55–73; Elizabeth Fee, "Public Health and the State: The United States," in *The History of Public Health and the Modern State*, ed. Dorothy Porter (Amsterdam: Editions Rodopi B.V., 1994), 224–75; Georgina D. Feldberg, *Disease and Class: Tuberculosis and the Shaping of Modern North American Society* (New Brunswick, N.J.: Rutgers University Press, 1995); and Nancy Tomes, *The Gospel of Germs: Men, Women, and the Microbe in American Life* (Cambridge: Harvard University Press, 1998).

11. Nicholas B. King, "Security, Disease, Commerce: Ideologies of Post-Colonial Global Health," *Soc. Stud. Sci.*, 2002, *32,* 763–89.

12. Elizabeth W. Etheridge, *Sentinel for Health: A History of the Centers for Disease Control* (Berkeley: University of California Press, 1992), p. 2; Fee, "Public Health and the State," pp. 241–49.

13. A. D. Langmuir and J. M. Andrews, "Biological Warfare Defense 2: The Epidemic Intelligence Service of the Communicable Disease Center," *Am. J. Public Health*, 1952, *42,* 235–38.

Emerging Infectious Diseases that the creation of the EIS should serve as a model for a "value-added" approach in current public health.[14]

CHANGE

Despite these similarities, the bioterrorist is not just a postmodern Typhoid Mary, nor are post-September 11 responses to the threat of bioterrorism merely a repeat of epidemics past. Bioterrorism presents an historically specific assemblage of risks and responses, illustrating larger changes in the contours of American public health and its place in global society.

First, the archetypal bioterrorist symbolizes something quite different from the infectious bogeymen of the past. His predecessors in the American imaginary were passive carriers, primitive contaminants of modern society identifiable by race, ethnicity, or nationality. The bioterrorist is an active agent, a sophisticated hybrid of primitive and modern who seizes "our" biotechnology—a symbol of American modernity and economic might—and transforms it into a political weapon.[15] He personifies American loss of control over not only its national borders, but also its scientific achievements. On a deeper level, he challenges the moral neutrality of those achievements, exposing what has come to be called the "dual use" dilemma: greater understanding and control over infectious diseases inevitably leads to greater opportunity for transforming those diseases into weapons.

Bioterrorists are also more inscrutable than their historical analogs. American security agencies' extensive racial and ethnic profiling since September 11 aside, bioterrorists are generally assumed to be "nonstate actors," difficult to track and impossible to identify by superficial characteristics alone.[16] Unlike the immigrants of the late nineteenth and early twentieth centuries, they have no particular ethnic or national affiliation. Unlike nation-states, they cannot be negotiated with, bound to international conventions, or forced to undergo routine surveillance.

14. J. E. McDade, "Addressing the Potential Threat of Bioterrorism: Value Added to an Improved Public Health Infrastructure," *Emerg. Infect. Dis.*, 1999, 5, 591–98.

15. Nicholas King, "Dangerous Fragments," *Grey Room*, 2002, 7, 72–81.

16. As this essay was submitted, the American government had confirmed that the anthrax used in the October attacks was the product of an American weapons laboratory, and public speculation on the attacker's identity focused on American scientists and laboratory workers—belying initial assumptions, prompted by the contents of some of the letters, that an Arab or Islamic group was responsible.

Bioterrorism is a focal point of American anxieties about globalization, demonstrating the difficulty of maintaining security amidst global transportation and information networks. How does the prospective bioterrorist learn how to weaponize pathogens? He hires a Russian biologist, studies microbiology in an American university on a student visa, or simply surfs the World Wide Web. How does he get the raw materials and tools necessary for weaponization? He buys them—from Russia, or Germany, or (most frequently) the United States. How does he distribute his weapons? He boards a plane and flies across the globe; or he slips them into the millions of tons of international commerce traversing the planet daily; or he simply drops them in the mail. Maintaining the sanctity of national and corporeal boundaries in a globalizing world seems all but impossible.

With regard to responses, American faith in (bio)technological fixes remains as strong as ever, but the specific technologies that we idealize have changed. The Progressives celebrated bacteriology, which promised to identify the pathogens that caused and the vectors that transmitted infectious disease, and to engineer pharmaceuticals to combat it or vaccines to prevent it. Americans now romanticize the molecular sciences, which promise to identify the genetic structure and evolutionary mechanisms of pathogenic organisms; biotechnology, which promises to develop new drugs and vaccines with unparalleled speed and efficiency; and information technology, which could allow us to identify outbreaks and track global patterns of disease with unprecedented accuracy. Earlier Americans marveled at the feats of microbe hunters and the wonder drugs that they produced, exemplars of laboratory science and inductive reasoning. Eighty years later, Americans celebrate the feats of swashbuckling virus hunters, but also fetishize the promise of automated global surveillance networks and mass distribution of pharmaceuticals.

The scale and scope of proposed surveillance regimes is the final area of novelty that historians might productively examine. Epidemiology has been a science of information collection at least since John Snow, François Melier, and George Buchanan's pioneering investigations of cholera and yellow fever 150 years ago. In contrast to this reactive, "shoe-leather" approach, contemporary recommendations favor a form of routinized, computerized global surveillance. This surveillance would be heavily reliant on new information technologies, databases, and molecular epidemiology, and depend on close

partnerships between public health institutions, national security agencies, and private industry. Current proposals, arguing that uninterrupted global surveillance is the backbone of public health effectiveness, emphasize the unity of American national security concerns with global health.[17]

A PLACE FOR HISTORY

Historians of medicine are in a unique position to assess current responses to the threat of bioterrorism. We are peculiarly attuned to the long-term ramifications of decisions made during real and imagined crises, and we understand that short-term responses can develop into long-lived structures.[18] We also understand both the positive and negative power of analogical reasoning.

We might therefore ask a series of questions largely absent in public discussions of bioterrorism. How much are fears of bioterrorism driven by a reasonable assessment of the risk and consequences of an attack, and how much by the displacement of other anxieties onto the nefarious figure of the (bio)terrorist? Given our historical knowledge that those least willing or able to comply with medical examination and testing are often the most disadvantaged, who would likely bear the brunt of the restrictive measures now proposed to deal with an attack? How might stigmatization and social prejudice drive political decisions under the conditions of extreme uncertainty that would certainly accompany a bioterrorist attack? Given the previous controversies over collection of epidemiological surveillance data, what might be some unintended consequences of routine surveillance and information-sharing between federal public health and national security agencies?[19] Will the current focus on biodefense divert funding and attention from other public health problems, in and outside

17. For discussions of the development of global surveillance programs, see the February and August 1992 editions of the journal *Politics and the Life Sciences*; and Christopher F. Chyba, *Biological Terrorism, Emerging Diseases, and National Security* (New York: Rockefeller Brothers Fund, Inc., 1998).

18. See, for example, Elizabeth Fee and Theodore M. Brown, "Preemptive Biopreparedness: Can We Learn Anything from History?," *Am. J. Public Health*, 2001, *91*, 721–26; as well as the response by one of the leading advocates of bioterrorism preparedness, D. A. Henderson, "Biopreparedness and Public Health," *Am. J. Public Health*, 2001, *91*, 1917–18.

19. Gerald M. Oppenheimer, "Causes, Cases, and Cohorts: The Role of Epidemiology in the Historical Construction of AIDS," in *AIDS: The Making of A Chronic Disease*, ed. Elizabeth Fee and Daniel M. Fox (Berkeley: University of California Press, 1992).

of the United States?[20] Finally, what long-term fiscal, political, and institutional consequences could the equation of American bioterrorism preparedness and global public health have? Will the fascination with biodefense be short-lived, or could it fundamentally reshape the relationship between the institutions of American public health, biomedical research, and the private sector?[21]

I should say a final word on doing history in the immediate post-September 11 era. I counsel caution, but I urge engagement. The kinds of arguments favored among historians of medicine are especially difficult to make under conditions of crisis. Constructionist or contextualist claims are often seen as the luxury of peace; but they are, in fact, our most precious resource in times of "war." Biodefense initiatives have the potential to reshape the future of American, and indeed global, public health. We cannot predict every outcome, nor can we prevent every mistake. But we can learn from the distant and immediate past, and we can understand the subterranean contours of contemporary discussions.

As I have indicated, reaching such an understanding necessitates the use of our historical tools; it also necessitates a reconsideration of the utility of those tools. Finally, and most importantly, it demands not only critical insight, but also something more uncommon and far more valuable: courage.

20. One recent survey of 539 local health departments found that, during the first phase of the smallpox vaccination program, about half had "deferred, delayed, or cancelled" other projects, such as prenatal care, HIV/AIDS prevention, water testing, and tuberculosis tracking. Ceci Connolly, "Smallpox Campaign Taxing Other Health Resources," *Washington Post*, 10 March 2003, p. A4.

21. In his January 2003 State of the Union address, President Bush proposed "Project Bioshield," which would establish a permanent fund of up to $6 billion over ten years to develop and produce vaccines and therapeutics for Ebola, plague, and other biological agents. To provide an incentive for pharmaceutical companies and biotechnology firms, the program guaranteed a market for resulting biodefense products, even if never used. In response, pharmaceutical industry representatives demanded higher guaranteed profits, fewer restrictions on spending, and protection from liability in case of adverse side effects. Michael Barbaro, "Biodefense Plan Greeted with Caution; Drug Firms Want Better Guarantees," *Washington Post*, 2 May 2003, p. E1.