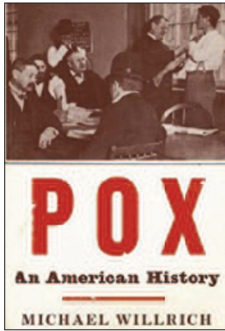


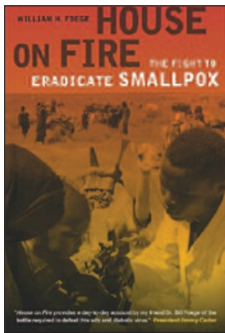
## Smallpox: the big picture



### **Pox: An American History**

By Michael Willrich

The Penguin Press, 2011  
400 pp., hardcover, \$27.95  
ISBN: 1594202869



### **House on Fire: The Fight to Eradicate Smallpox**

By William H. Foege

University of California Press, 2011  
240 pp., hardcover, \$29.95  
ISBN: 0520268369

Reviewed by Amy E Slaton

You probably didn't have to wait in line for your flu shot this year, because the pressing worry that some new strain of influenza—such as the 'bird flu' and H1N1 that threatened in recent autumns to bring us down—seems to have passed. Our fear of pandemics is notoriously variable and not entirely related to epidemiological projections or even to media coverage of emergent health risks. Rather, cultural forces, such as the social relations of urban life, local lore and perceptions of global geopolitical insecurity, converge to generate the popular response to the threat of disease. All help set the layperson's gauge of a malady's reach or virulence and, by extension, of the need to protect oneself and one's family from infection.

Such social complexity has characterized human responses to epidemics throughout history, but modern techniques of disease prevention, global-scale migrations and health bureaucracies have added many actors and tensions to the story. Emergent antivaccination movements in the US today distress all those concerned with public health, and it is only through acknowledging that complexity that we may see a way to address this worrisome social trend. In *Pox*, a historical account of America's response to smallpox after 1900, Michael Willrich teases out the social, cultural, medical and political agendas that shaped the national reaction to that dreaded disease, finally eliminated in the US in 1949. In *House on Fire*, William H. Foege, an epidemiologist and former

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director of the US Centers for Disease Control and Prevention (CDC), follows the more recent international assault on smallpox, especially his own work in Africa and India in the 1960s and 1970s. Together, these books teach us not only about this one disease but also about the meanings of health, illness, privacy, responsibility and the state in modern societies.

Both books describe the elaborate scientific and institutional processes by which public health interventions reached sufficiently large populations to eliminate smallpox in the twentieth century, including containment, surveillance and vaccination. Although the reduction of human suffering brought by the control of smallpox is central to both stories, neither author isolates the work of scientists and public health operatives from the cultural contexts in which these people labored. Both Willrich and Foege write of citizens who welcomed the work of medical experts and those who feared or resisted that intervention. The books thus draw lessons of far more value for present-day readers than would a simpler heroic narrative that presents primarily the positive outcomes of these interventions.

Willrich's account, based on primary sources that he meticulously researched, describes how local and federal health authorities in the US attempted to limit the impact of smallpox largely through vaccination, starting in the last decade of the nineteenth century. His narrative follows individuals stricken with the disease, antivaccine activists, and the campaigns of scientists, doctors, military men and bureaucrats, both obscure and prominent, to end the scourge. Willrich's aim throughout is to trace smallpox as it played out in the "human community" of Progressive-era America and its remote military outposts. In this way, Willrich is showing that all diseases gain their entire meaning from the particular settings and belief systems in which they play out; in other words, there is not some purely biological version of smallpox that exists apart from such social circumstances. As Willrich describes the environments and social organizations of American communities, we see exactly why smallpox was greeted with various interventions and different degrees of urgency by diverse officials and populations.

For example, because close proximity between the sick and the well became unavoidable in the nation's increasingly crowded work camps, towns and cities, authorities had no choice but to turn away from older techniques of quarantine and emphasize vaccination to prevent the spread of smallpox. And yet, this book makes clear that 'proximity' is not how most citizens experience modern American life, structured as it is around private households, discrete family units and self-governing cities and towns. Thus, Willrich's history helps us grasp why many Americans, who understandably experienced their own homes and neighborhoods as freestanding, safe and autonomous, were not easily swayed toward the essential collectivism of universal smallpox vaccination, despite watching people sicken and die from the disease. Willrich does not come close to endorsing that public resistance to vaccination, but he does probe its historical and cultural contingency with notable creativity.

Willrich captures the emerging self-identity of public health officials and doctors after 1890 or so as messengers of science, as well as their oppositional role among 'less informed' communities (as more educated Americans commonly characterized their poor, immigrant or rural

fellow citizens). This notion of experts as privileged elites, sometimes dismissive of lay audiences' concerns and values, is not new among historians of Progressive-era professions. But, impressively, Willrich never allows the patent benefits of vaccination, and our enduring relief in knowing that smallpox is no more, to obscure these historical processes. He notes, for example, that many African Americans, blamed by whites in some localities for the spread of disease and harshly condemned for their hesitancy to vaccinate, "learned how a smallpox epidemic could transform years of official indifference and neglect into coercion and violence." Similarly, vaccination policies carried with US military forces into the Philippines after 1901 brought with them improved health but also powerful ideologies of racial distinction and US colonial domination.

Interestingly, we learn that elites also figured among the antivaccinationists of the era. Some who opposed mandatory vaccination were concerned with the "uncertain meaning of liberty in a modern, urban-industrial society," while the philosopher William James argued that the medical profession expressed in its hegemonic policies a "monopoly over belief itself." This revelation, too, helps us understand current strands of the American anti-vaccination movement, in which demographic heterogeneity manifests as a vast range of motivations to reject immunization.

There are a few moments when Willrich does not provide enough interpretation to justify our taking in so many facts or so many dramatic turns surrounding a particular historical episode. The writing can sometimes seem florid. Yet, the narrative mostly flows well, and there are invaluable take-home lessons here. We learn, above all, how a culture's faith in scientific medicine is ultimately established: citizen by citizen, block by block. This seems a vital contribution to our understanding of those who are today reluctant to vaccinate. That reluctance is entirely regrettable but also as multiply determined as that seen in the smallpox-stricken cities and towns of a century ago.

William Foege's book is a personal account of systematic efforts to eradicate smallpox in African nations and then in India, closely but compellingly focused on practicalities and concluding with a remarkably concise (and tellingly calm) appendix: "A Plan in the Event of Smallpox Bioterrorism." Foege served the CDC and World Health Organization (WHO) first in Nigeria and then in India directing immense administrative projects that successfully joined international medical expertise to regional governmental and public health infrastructures. We learn that improved vaccine production and mechanized vaccine delivery, coupled with intensive planning and oversight, allowed for vast expansions in immunization. Hugely significant, as well, were emergent understandings of smallpox incubation and transmission and the innovative addition of 'surveillance and containment' strategies, which compensated for the near impossibility of reaching the final 20% of any population in a mass vaccination campaign. All of these developments, not the dissemination of the vaccine alone, led to the international eradication of smallpox in 1977.

Logistics have always challenged those individuals implementing

medical knowledge. India inaugurated smallpox vaccination within just a few years of Jenner's 1796 discovery of the cowpox-based vaccine, and one of the most haunting images in the book is that of a sequence of children being used to deliver the live virus around the country in 1802: each child's lesion became the source of the next child's vaccination. Foege writes that the restriction of these early efforts by British authorities to "easily accessible urban areas" set up an inequitable (and ineffectual) pattern of smallpox vaccination in India that persisted for over a century. The nation recorded 400,000 smallpox deaths between 1947 and 1962, and those reports may represent only 1% of actual deaths. In 1966, when the World Health Assembly, the governing body of the WHO, determined that a funded global assault on smallpox was called for, a public health intervention of utterly unprecedented scale began to take shape.

Foege shows that it was not merely the massive commitment of time and resources but a "transmission of belief" about the possibility of eradicating smallpox that made the system work. Personnel at each level directed increasingly larger staffs on the level below, until a huge army of field workers spread out to contact every corner of an afflicted nation. Nearly all were profoundly committed to seeing the project through, and I found myself increasingly in awe of Foege and his colleagues at every level of the system. Their extraordinary ingenuity and energy come across as the book spools out the mind-bogglingly detailed work needed to create and maintain the communications, training, reporting and transport systems required for this massive undertaking.

We could perhaps wish that Foege reflected a bit more here on the world into which these systems were inserted. Containment of the ill and house-by-house surveillance of African and Indian communities clearly were central to the eventual suppression of smallpox, but those practices will immediately remind some readers of a set of social relations historically found throughout the imperial world: white Europeans and North Americans intervening in the lives of indigenous peoples through intimate and insistent observation. We do not deny the incalculable human value of smallpox eradication when we acknowledge the close fit of political and bodily control in colonial regimes.

This is important for a reason I suspect Foege would support: in trying to meet public health challenges, if we see a population's reluctance to cooperate with health officials as noncompliance rather than as reasoned cultural response, we may begin to reassert disturbing historical patterns of social dominance. Willrich, as the historian, keeps a kind of cultural contingency, and thus such matters of power, front and center. By contrast, Foege, although he lived and worked among a diversity of cultures and writes with deliberate respect about his indigenous staffs and patients, reports as the expert practitioner with a practical endpoint in view at all times. But both books are deeply constructive and compassionate, and together they demonstrate the inseparable roles of science, logistics and ideology in public health efforts of every era.

#### COMPETING FINANCIAL INTERESTS

The author declares no competing financial interests.