

*The Pox of Liberty:*  
*How the Constitution Left Americans*  
*Rich, Free, and Prone to Infection*

## Chapter 1. Introduction

James E. Robinson considered himself a judicial maverick. Elected to the North Dakota Supreme Court in 1918, Justice Robinson had promised voters to get “the court out of the old ruts of the law and to minister justice in a plain, common-sense, and businesslike manner.” In practical terms, this meant writing brief opinions that spoke to the people; publishing those opinions in a local newspaper in a weekly column; frequently making decisions before hearing the arguments of counsel; and eschewing the practice of *stare decisis*, basing decisions on precedent. “I have little regard,” Robinson explained, “for old, obsolete or erroneous decisions and prefer to decide every case in accordance with law, reason, and justice. I do never—like Pontius Pilate—wash my hands and blame the law or a precedent or party zeal for an unjust decision.”<sup>1</sup>

Robinson’s impatience with precedent and formalism earned him the ire of legal observers from coast to coast. Max Radin of the University of California at Berkeley published a ten page article in the *California Law Review* denouncing Robinson for his flagrant disregard of legal principle and for his refusal to apply the law in a non-partisan and impersonal way. This characterization flowed in part from Robinson openly saying that if a litigant before him was in the right, that person should win the case, no matter what the law or precedent said.

Similarly, an editorial statement in the *Harvard Law Review* admonished Robinson for relying so

---

<sup>1</sup>Andrew A. Bruce, “Judicial Buncombe in North Dakota and Other States,” *Central Law Journal*, Vol. 88, No. 9, February, 28, 1919, p. 155. See more generally, Herbert L. Meschke and Ted Smith, “Judicial Values: The Justice Robinson Experience,” *North Dakota Law Review*, Vol. 82, pp. 25-

heavily on his own discretion and for appealing to precedent only when the precedent comported with his own ideological preconceptions. But the angriest rebuke came from the country's mid-section and the editors of *Central Law Journal* in St. Louis, Missouri. In an editorial titled "Judicial Buncombe in North Dakota and Other States," the *Central Law Journal* argued that Robinson's "perfunctory opinions" would culminate in "judicial despotism," a legal system based not on the rule of law but on the vagaries of a judge's friendships, sympathies, and fears.<sup>2</sup>

Few decisions illustrate Robinson's approach to adjudication better than a concurring opinion he wrote in the case of *Rhea v. Board of Education*. In this case, the Board of Education of the Devil's Lake School District issued an order requiring all students to show proof of a smallpox vaccination before they could enroll. The parents of Lawrence F. Rhea sued, arguing that the school district did not have the legal authority to issue and enforce such an order. In ruling in favor of Rhea, Justice Robinson based his decision not on the law, but on his own views and medical opinions regarding smallpox control. Robinson acknowledged that "in writing a judicial opinion [it] is customary to fortify it by a reference to authorities, that is, to decisions in similar cases." However, he claimed such references were not possible in this case because all previous judicial decisions had been rendered "under different statutes and conditions." Given this, he felt the question was to be decided based upon something he called "the fundamental law," as well as "the statutes, common knowledge, and pure reason."

---

<sup>2</sup>Andrew A. Bruce, "Judicial Buncombe in North Dakota and Other States," *Central Law Journal*, Vol. 88, No. 9, February, 28, 1919, p. 155.

Accordingly, Robinson briefly discussed a few North Dakota statutes and relevant provisions in the state constitutions. He also mentioned a handful of cases from other states he felt were loosely related. But, by and large, the decision was written as a polemic against the practice of smallpox vaccination.

Like most anti-vaccinationists, Robinson believed that smallpox was caused by crowded and unsanitary living conditions. The practice of vaccination continued only because it was “promulgated and adopted as a religious creed” by physicians blinded by orthodoxy and profit, and because parents were too ignorant to understand what the procedure was doing to their children. Never one to shy away from a biblical reference, Robinson interjected: “the light shineth in darkness and the darkness comprehendeth it not.”<sup>3</sup> Again like most anti-vaccinationists, Robinson also believed that smallpox vaccination was an extremely dangerous procedure. He claimed, for example, that “25,000 children annually” were “slaughtered by diseases inoculated into the system by compulsory vaccination.” In the same line of thought, he claimed that it had been shown, “beyond doubt,” that smallpox vaccination “not infrequently” causes “death, syphilis, cancer, consumption, eczema, [and] leprosy.” Robinson had little patience for those who disagreed with him on the merits of smallpox vaccination, writing at one point that anyone who held a contrary opinion, “either does not know the facts, or has no regard for truth.”<sup>4</sup>

Robinson’s tenure on the North Dakota Supreme Court was a short one; he was voted

---

<sup>3</sup>*Rhea v. Board of Education of Devils Lake*, 41 N.D. 449 (1919), p. 458.

<sup>4</sup>*Rhea v. Board of Education of Devils Lake*, 41 N.D. 449 (1919), pp. 457-458.

out of office after serving only five years on the bench. But his views regarding the dangers of vaccination were not the reason why. On the contrary, his decision was part of a broader legal and political impulse in North Dakota, and elsewhere in the United States, that limited the power of public health authorities to enact and enforce compulsory vaccination programs. As late as 1975, North Dakota law prohibited state authorities from denying unvaccinated children access to public schools. In such a legal setting, it is perhaps not surprising that the death rate from smallpox in North Dakota was roughly ten times higher than in states that expressly empowered health agencies to adopt mandatory vaccination programs and compelled recalcitrant citizens to undergo the procedure. In part because of states like North Dakota, the United States had a much higher death rate than most other wealthy industrialized countries (e.g., Germany, Denmark, and Canada). Even places like Sri Lanka, a relatively poor British colony, had a significantly lower smallpox rate than the U.S.<sup>5</sup>

How and why did the United States—the richest, most technologically-advanced democracy in the world at the time—lag behind poorer and often less benevolent societies in eradicating smallpox, as well as several other infectious diseases? Writing in the midst of a worldwide outbreak of smallpox in 1902, *Mosher's Magazine* gave the beginnings of an answer. It first noted that a century of human experience the world over had demonstrated the efficacy of vaccination in preventing smallpox. The magazine also pointed out that the leaders of the anti-vaccinationist movement in the United States and elsewhere were “the so-called intelligent ones, the professional people.” It was “the lawyers, the writers, [and] the teachers”

---

<sup>5</sup>See chapter 3 data and documentation.

who were “most apt to deem themselves outside of the laws that make the ordinary human body sick or well.” What *Mosher’s* was referring to here was the mistaken anti-vaccinationist notion that smallpox originated from filth and uncleanness, as opposed to a specific and contagious pathogen.<sup>6</sup>

But, more important than their peculiar understanding of the pathogenesis of smallpox, was the political ideology that undergirded the anti-vaccinationist cause. For anti-vaccinationists in America and elsewhere, the right to refuse and dissent from public vaccination programs was seen as fundamental as the right to free speech or private property. Efforts by state and local authorities to abridge that right were seen as despotic and tyrannical.<sup>7</sup> It is no coincidence, then, that anti-vaccinationists laced their polemics with the language of libertarianism. For example, in his lengthy tract against vaccination, H.B. Anderson began and ended by quoting extensively from the Declaration of Independence, the Gettysburg Address, and the Federal Constitution. According to Anderson, compulsory smallpox vaccination was equivalent to “medical slavery” and the Constitution was supposed to protect the citizenry from such bondage. Without a hint of irony, he appealed to the Thirteenth Amendment to the Constitution (forbidding slavery and involuntary servitude) as protection against mandatory smallpox vaccination.<sup>8</sup>

---

<sup>6</sup>*Mosher’s Magazine*, July 1902, Vol. 20, No. 4, pp. 248-49.

<sup>7</sup>*Mosher’s Magazine*, Vol. 20, No. 4, July 1902, pp. 248-49.

<sup>8</sup>Writing in 1920, in the wake of a series of legal developments that undermined his cause, Anderson claimed that there had “never been a time in the history of the United States when it was more important to keep in mind the words ‘eternal vigilance is the price of

Similarly, when thousands of people gathered in Leicester, England in March of 1885 to oppose mandatory smallpox vaccination they too spoke mainly of individual liberty. One observer hailed the day as “a birthday of liberty,” as a day that unified the free and principled citizens of England against an unjust policy: “from half the counties of England, from scores of towns and cities, men of all professions, of all trades, bound in close bonds of sympathy, not by tens and twenties, but by hundreds and thousands, met. Thank God for such that England has a conscience still, and a manhood and womanhood too that cannot and will not be trampled in the dust by the hoof of tyranny.” Although the Leicester participants spoke much about the dangers of “horse grease,” beastly abominations, and “adulterated blood” and about how mandatory vaccination was just another phrase for “legalised compulsory medical quackery,” they also made frequent appeals to libertarian ideals and principles, carrying banners that read “The price of liberty is eternal vigilance;” “Health and Liberty;” “Parental affection before despotic law;” “Men of Kent defend your liberty of conscience;” “Stand up for Liberty!” and “We fight for our homes and freedom.”<sup>9</sup>

*Mosher's Magazine* attributed the persistence of smallpox among Americans and the English to this commitment to individual rights and liberty, a commitment that in the case of

---

liberty.” To Anderson’s way of the thinking, the liberty of all Americans was in peril: mandatory vaccination was but the opening wedge in a larger state-sponsored assault on medical freedom and individual choice in health care. See Harry B. Anderson, *State Medicine: A Menace to Democracy*, New York: Citizen’s Medical Reference Bureau, 1920.

<sup>9</sup>J.T. Biggs, *Leicester: Sanitation Versus Vaccination. Its Vital Statistics Compared with Those of Other Towns, the Army, Navy, Japan, and England and Wales*, London: The National Anti-Vaccination League, 1912, pp. 109-10.

smallpox (as well as other public measures) endangered the broader populace. To make its case, *Mosher's* turned first to Egypt, where British colonial authorities had made smallpox vaccination compulsory. Despite the fact that the British expatriates living in Egypt had “the best” there was “in the way of comfort, cleanliness, and sanitation, their smallpox rate was “six times higher” than the rate for the Egyptians. A British government report explained that while it was “possible to enforce vaccination among the native population” it was impossible to “enforce it” among the English, who often simply refused get vaccinated.<sup>10</sup>

*Mosher's* went on to describe a “parallel case” in the Americas. Following the Spanish American War, the United States stationed troops in both Puerto Rico and Cuba. Within a few years, smallpox was eradicated in both of those places while at the same time, authorities in New York City and Massachusetts continued, with only limited success, to battle the disease for another fifty years. Put another way, it took public health officials in Massachusetts well over a century to eliminate smallpox; it took American soldiers in Puerto Rico and Cuba less than five. Just as with the English in Egypt, *Mosher's* reported that it was “possible to enforce” compulsory vaccination programs in Puerto Rico and but not in the United States, where the capacity to dissent and resist mandatory vaccination remained.<sup>11</sup> As one Pennsylvania physician explained, Americans were “accustomed to do their own thinking” and were “quick

---

<sup>10</sup>*Mosher's Magazine*, July 1902, Vol. 20, No. 4, pp. 248-49.

<sup>11</sup>*Mosher's Magazine*, July 1902, Vol. 20, No. 4, pp. 248-49.



to resent every measure which seem[ed] to threaten their individual liberty.”<sup>12</sup>

Reading this introduction, it is tempting to say the United States got it all wrong. If only the country had been less ideological and more scientific/technocratic, the argument might go, it would not have lagged behind so many European countries in eradicating smallpox. Indeed, data presented in chapter 4 suggest that if the U.S. had been more like Continental Europe, it probably would have eliminated the disease 50 to 100 years before it actually did. Nevertheless, in *The Pox of Liberty*, I suggest that we should not be so quick to dismiss the American approach to disease prevention wholesale. Although the United States would have enjoyed lower smallpox rates in the absence of its commitments to individual liberty, that does not necessarily imply that the country would have been made better off by scuttling those commitments in favor of a more centralized and extensive public health network.

There are at least three reasons for this. First, the American commitment to liberty, while it hindered efforts to prevent smallpox, also promoted economic growth and political freedom. Put more precisely, the same constitutional provisions and ideological beliefs that slowed the implementation of mandatory vaccination programs in the United States simultaneously fostered economic prosperity and individual liberty. Whether the benefits of increased growth and freedom outweighed the costs of smallpox I will leave for someone else to say. My goal is only to show that the trade-off existed and that it is a trade off with more

---

<sup>12</sup>William R. Fisher, “Some Popular Objections to Vaccination,” *St. Louis Clinique*, Vol. XVII, No. 1, January 1904, pp. 54-55.

general relevance. Understanding the American experience with smallpox in this way suggests that the United States had high smallpox rates not despite being rich and free, but because it was rich and free. This idea inverts the way most observers think about disease—disease is typically portrayed as the result of poverty and deprivation, not riches and freedom—and it is an idea I will return to, in one form or another, throughout the book.

Second, institutional and ideological commitments to liberty and economic growth were not always inimical to all disease prevention efforts; there were cases and particular diseases where the interests public health and liberty were aligned. Chapter 5, for example, shows how constitutional rules protecting private property rights and promoting the sanctity of contracts, particularly contracts related to municipal debt, not only fostered private investments and economic development, but also played a central role in the eradication of typhoid fever. Similarly, chapter 6 shows how the American commitment to federalism, a commitment that had decidedly negative effects on smallpox eradication programs, simultaneously encouraged regional economic prosperity and the implementation of programs that were designed to protect cities and towns from the ravages of yellow fever. Although the anti-yellow fever programs that emerged from this federalist system did not always work exactly the way their designers intended, there is evidence to suggest that they had broad public health benefits, reducing deaths from all sorts of diseases beyond just yellow fever.

Third, history suggests that public health policies can sometimes veer away from promoting health to oppressing minority groups or promoting sectional economic interests. Perhaps the best known example of this occurred at the height of the American eugenics

movement when public health officials in some states sterilized, or attempted to sterilize, individuals without their consent in order to prevent individuals with “socially undesirable” characteristics from reproducing.<sup>13</sup> Examples presented later in the book, while less well known, suggest that these deviations from appropriate policy occurred because politicians and public health officials were no less immune to the racist and baser economic motives that animated the rest of society.<sup>14</sup> When one recognizes the possibility that public health officials are not above implementing the same prejudices and biases that dominate the rest of the society, the necessity of a system that protects individuals rights and liberties becomes apparent. Of course, the cost of such protections is that they not only limit the ability of public health officials to enact objectionable policies, they also slow the adoption and implementation of effective and desirable policies.

*The Origins of an American Approach to Disease Prevention*

In the chapters that follow, I expand on these ideas and explore how the American constitutional order has shaped public health in the United States from colonial times to the mid-twentieth century. Although political institutions and ideologies are the focal point of my analysis, medical and scientific discoveries play an important secondary role. Most of my analysis focuses on three diseases: smallpox, typhoid fever, and yellow fever. Smallpox was a

---

<sup>13</sup>For the sordid history of anti-sterilization laws and the American eugenics movement, see *Buck v. Bell*, 274 U.S. 200 (1927); Paul A. Lombardo, “Three Generations, No Idiots: New Light on *Buck v. Bell*,” *New York University Law Review*, April 1985, Vol. 60, pp. 30-121.

<sup>14</sup>See, for example, the discussion of plague vaccination and the Chinese in San Francisco, presented in chapter 3.

highly infectious disease, spread mostly through the air. Typhoid was a waterborne disease spread mainly, though not exclusively, through sewage-tainted water. Yellow fever was spread by a mosquito and was a regular visitor to large port cities, especially those in the American South. All three of these diseases plagued the United States throughout the nineteenth century, and smallpox and typhoid remained serious public health problems well into the twentieth century.

Stated in a simple and generic form, my central argument is that disease prevention efforts in the United States were shaped by an inter-connecting web of ideologies and institutions. Because some of these ideologies and institutions were distinctly American, they gave rise to a system of disease prevention that was also distinctly American. The defining features of this system were fourfold. First, it was decentralized, predicated mainly on the strategies and investments of municipal governments. Second, it was initially predicated on individual consent and private action, though over time it increasingly appealed to the coercive power of the state. Third, it relied heavily on private property rights to induce investments in health-related infrastructure. This was particularly true in the case of public water supplies, which were arguably the single most important public health initiative of the pre-1950 period. Fourth, it was heavily influenced by market processes and commercial and business interests.

The ideas and ideologies that were most important in shaping the American approach to disease prevention were threefold. First, from their colonial inception, Americans showed a deep ideological attachment to forms of governance that were decentralized and rooted in private consent and voluntary action. This, in turn, fostered and helped sustain federalism in

the provision of public health, despite historical and political forces that were pushing for greater centralization. Second, because Americans placed a high value on commercial success and economic prosperity, those values also influenced the practice and implementation of public health policies. While commercial and economic values are often portrayed as inimical to public health, there is evidence to suggest that such values could, at times, foster better public health outcomes. Third, the rise of the germ theory of disease interacted with, and reshaped, political beliefs and ideologies to usher in a vast expansion in the size and scope of government involvement in public health, particularly at the local level.

The institutions that mattered most in forging the American approach to disease prevention can be divided into four categories: democracy; private property rights; federalism; and protections of individual liberty. Regarding democratic institutions, these institutions allowed American politicians all levels of government (state, federal, and local) to enjoy greater electoral success through the social gains associated with disease prevention. This aligned political and public health incentives: throughout the nineteenth century, good sanitation and disease prevention was good politics.<sup>15</sup> For example, when politicians invested in public health ventures that were successful, they garnered votes and political support; and when they devised ways to control and eradicate epidemics, they limited disruptions in trade, business, and tax revenues. In the case of public water and sewer, and sanitation more generally, there was an alignment of political, economic, and public health interests: as explained later in the

---

<sup>15</sup>Although this topic will be discussed in detail in chapter 5 on the development of urban water supplies, see generally, Jon C. Teaford, *The Unheralded Triumph: City Government in America, 1870-1900*, Baltimore: Johns Hopkins University Press, 1984.

book, even businesses wanted spending in these areas because it was seen as a means of promoting long-term economic growth.

As for private property rights, various provisions in state and federal constitutions constrained the future behavior of politicians and thereby enabled them to make credible promises about future behavior to potential lenders, private entrepreneurs, and taxpayers. To highlight the importance of these institutions, imagine how difficult it would have been for a city to raise the funds necessary to build a water and sewer system if potential lenders did not believe that the city would eventually pay back what was borrowed, or if there was a sizeable risk that local politicians would simply take the money they borrowed and use it for some other, less socially remunerative end. Constitutional rules governing municipal debt and prohibiting legislatures from passing laws that altered the obligation of contract *ex post* gave lenders and potential investors confidence that their loans would be repaid and that their capital would not be expropriated. But while these constitutional provisions made it much easier and cheaper for governments at all levels to raise the funds to finance otherwise costly public health initiatives, they could at times also hinder government efforts to regulate private enterprises engaged in activities that affected the public health.

As for federalism, during the nineteenth and early twentieth century, the regulatory structures of state and local government were more vast and intrusive than those at the federal level. The decentralized nature of American public health was well suited for localized epidemics and problems, but was less adept at controlling epidemics and health problems that crossed state borders. Also, in contrast to more centralized and bureaucratic regimes, the

America's federalist approach to public health gave ordinary citizens multiple venues to challenge the decisions of medical experts and health authorities.

If, for example, the board of health in a particular town or state announced a policy that some individuals objected to, not only could those individuals challenge the policy in court or lobby legislators to pass a law barring the implementation of the policy, but if these options failed, the aggrieved parties could move to another jurisdiction where health officials adopted friendlier policies. In turn, sorting across political jurisdictions fostered the development of communities made up almost entirely of skeptics and medical heretics opposed to the recommendations of the medical establishment. As explained in chapter 3, sorting of this variety gave rise to pockets of smallpox and left the country with higher smallpox rates than it would have had under a more centralized public health system.

As for institutional protections of individual liberty, probably the most important was the Fourteenth Amendment to the Federal Constitution. Passed in the aftermath of the Civil War, the Fourteenth Amendment guaranteed all citizens equal protection under the law and prohibited states from taking from any individual "life, liberty, or property without due process of law." As explained in later chapters, when individuals during the nineteenth and early twentieth century challenged any given public health measure as a violation of their individual rights and liberties, they almost always invoked the equal protection and due process clauses of the Fourteenth Amendment. While these challenges were often unsuccessful, the litigation that grew out of them could slow or delay implementation of policy, and in some cases might have helped popularize dissent.

In the case of mandatory smallpox vaccination, for example, when the courts upheld mandatory vaccination orders, despite claims that they violated Fourteenth Amendment rights, voters would simply trump the courts by securing passage of laws restricting the ability of public health officials to enforce mandatory vaccination policies. Ironically, in the political campaigns to legislate around the courts, those opposed to vaccination would often invoke the same constitutional provisions and protections the courts had said did not apply, suggesting that popular thinking about what the Constitution said was nearly as important, or perhaps more so, than what the courts said in shaping public health policy.

*The American Constitutional Order and the Mortality Transition*

Given the discussion thus far, it is tempting to believe that American political institutions had only negative effects on disease prevention efforts. This, however, would be a mistake. While it is true that there were aspects of the American constitutional order that impaired, and continue to impair, the provision of public health and disease prevention, there were also many cases where American political institutions fostered and promoted both public and private investments in disease prevention. The simplest way to highlight and introduce these more positive effects is by looking briefly at the history of life expectancy in the United States, giving particular attention to what demographic historians refer to as the mortality transition and the associated eradication of infectious disease.

The mortality transition took place between 1850 and 1950, when the United States (and other parts of the world) witnessed remarkable and historically unprecedented improvements



in human health and longevity.<sup>16</sup> Life expectancy at birth among whites increased by 75 percent, growing from 39.5 to 69. Among non-whites (almost there was an even larger increase, with life expectancy more than doubling, rising from 23 to 60.8. What is particularly notable about the comparatively large increase in non-white life expectancy is that it took place during the pre-Civil Rights era, at a time when African-Americans endured extreme economic and social deprivation relative to whites. One is tempted to attribute catch-up among blacks to the fact that they were starting from a much lower base—after slavery, where else was there to go, but up?—but there is much evidence to suggest that the investments in public health infrastructure over this period, particularly those related to water purification and distribution benefitted blacks far more than whites. Whether one is talking about whites or blacks, life expectancy continued to rise after 1950, but the rate of improvement was one-half to one-third the rate observed in the earlier period.<sup>17</sup>

The improvement in human health and longevity that occurred between 1850 and 1950 were associated with radical change in the country's disease and age profile. Before 1880, the leading causes of death were diarrheal diseases—such as typhoid fever, cholera infantum, and

---

<sup>16</sup>James C. Riley, *Rising Life Expectancy: A Global History*, Cambridge: Cambridge University Press, 2001.

<sup>17</sup>Between 1850 and 1950, life expectancy for whites increased by around half a percent per year (.0054778); after 1950, life expectancy increased at a rate of just under a quarter of a percent per year (.0023691). For nonwhites the contrast is even greater, with nonwhite life expectancy increasing 3 times faster during 1850 and 1950 period than during the subsequent period. Specifically, between 1850 and 1950, life expectancy for nonwhites increased by just under one percent per year (.0091572); after 1950 life expectancy for nonwhites grew at an annual rate of .0032396.

dysentery—and respiratory diseases—such as tuberculosis, influenza, bronchitis, and pneumonia. But by 1925, deaths from waterborne diseases such typhoid had been largely eradicated; and respiratory diseases, while still common, were being eclipsed by heart disease and cancer as the city’s leading causes of death. These changes in the country’s disease profile were associated with sharp improvements in child and infant mortality because infectious diseases such as diphtheria and diarrheal diseases bore disproportionately on the young.<sup>18</sup> Put another way, as the country moved from a high to low mortality environment, chronic diseases and diseases of old age replaced infectious diseases and child mortality as the leading causes of death.<sup>19</sup>

How the U.S. and other industrializing countries came to eradicate infectious diseases, and reduce overall mortality, is typically seen as the product of a purely technological process. For some the technological changes wrought by the industrialization, increased per capita incomes and made it possible for people to buy better housing and improved nutrition, which in turn, allowed households to more effectively prevent and fight off infections such as tuberculosis. For others, improvements in the technologies associated with public health, such as water filtration and the diphtheria antitoxin, were the driving force behind the

---

<sup>18</sup>Probably around half of all deaths in 1850 occurred in children under the age of five; by 1950, well under a quarter of all deaths occurred in children under the age of five. In 1850, between 20 and 30 percent of all new-borns perished in the first year of life; one hundred years later, only 2.5 to 3.5 percent of all infants died. See *Historical Statistics of the United States* (Millennial Edition).

<sup>19</sup>For the data on death rates by period, see the *Annual Reports* of the Chicago Department of Health (1870-1925).

improvements in human health and longevity. For still others, there is a focus on the development of antibiotics and more modern medical treatments, though most all scholars agree that these changes came along well after the largest improvements in longevity had already been achieved. But whatever technologies one wishes to emphasize, the emphasis on technology is far too simple. As the narrative below will demonstrate, new technologies, and the capital investments that embodied those technologies, were predicated on political and legal institutions.

Nowhere are the connections among institutions, capital investments in public health, and the mortality transition clearer than in the history of typhoid fever. A waterborne disease, typhoid was eradicated through a series of city-level decisions to invest in water distribution networks and water filtration. Cities made these investments in response to the demands voters who wanted effective responses to repeated typhoid epidemics and rewarded politicians with re-election for implementing such responses. Surprisingly, white voters supported extending water distribution systems into black neighborhoods because they feared that typhoid epidemics in the black community might spread to white neighborhoods. In addition, once a decision was reached to build a local water distribution and filtration system, the financing for that system relied on an institutional framework that assured potential investors that the local authorities would repay the money and invest it as promised.

The social rate of return on investments to eradicate typhoid, and distribute pure water, were enormous, and the mortality transition in the United States would have been a much less impressive feat absent investment in public water supplies. More precisely, the available

demographic evidence suggests that improvements in water quality account for well over half of the reduction in mortality observed between 1850 and 1925. This occurred because access to safe drinking water affected a broad range of health outcomes, not just waterborne diseases. Juxtaposing the U.S. experiences with smallpox and typhoid fever makes clear that *The Pox of Liberty* is not a wholly negative story about freedom inhibiting public health, but is a positive one as well, with American commitments to property rights and representative politics fostering an extensive effort to eliminate waterborne diseases.

*Modern Relevance:  
Why This History Matters*

Anyone who writes or teaches history inevitably has to answer the who-cares question: what makes this particular history relevant? For the case here, that question is no less inevitable. Smallpox, yellow fever, and typhoid fever, the primary focus of this book, are long gone; and few people today even know what yellow fever and typhoid even were. Why then should anyone today care about how the Constitution and ideological commitments to individual rights and liberties shaped the efforts of public health authorities to battle these three diseases of American antiquity?

There are at least three reasons. First, as discussions in following chapters will make clear, understanding *The Pox of Liberty* can also help us understand a host of modern health care debates in the United States because many of the same Constitutional rules and structures that shaped disease prevention efforts in the past continue to influence health outcomes today, though on a much broader scale. This is especially true of the Commerce Clause and the

Fourteenth Amendment. Abortion rights; state laws regarding contraception; policies governing HIV prevention efforts; federal spending on women's health care; medical privacy laws; the tenacity of the modern anti-vaccination movement in the United States; the extended legal and political battles over medicare and national health insurance; all of these in one way or another, harken back to an earlier time when smallpox, typhoid, and yellow fever were an integral part of the American experience.

A second path to modern relevance begins with the observation that in any comparison in life expectancies across well developed countries, the United States is a puzzle. Depending on the data source, the U.S. ranks among the very top of all nations in terms of income per capita, yet it is a truly middling performer in terms of longevity. If income per capita is an important determinant of health outcomes, U.S. life expectancy ought to rank in the top 10 or 15 countries, yet according to the World Health Organization, in 2011, the U.S. ranked the 38<sup>th</sup>, behind Cuba, Chile, Costa Rica, and Greece . Moreover, life expectancy within the formal borders of the United States even ranks below life expectancy in U.S. territories such as Puerto Rico and the Virgin Islands.

Why does the United States perform so poorly in international comparisons of health? The standard answers to this question are typically ahistorical, focusing solely on the current policies and health-related behaviors. For some observers, it is the absence of universal health care or social inequities more generally construed. For others it is a constellation of social and behavioral factors that drive Americans to adopt unhealthy lifestyles, leading to high rates of obesity, heart disease, cancer, and diabetes. While the emphasis on present-day factors is in

many respects natural and to be expected, it also fails to come to terms with a more fundamental set of institutions and ideological impulses that shape and drive modern policy debates. Failure to understand these institutions and ideologies, can hinder the formation of policies that are both effective and politically viable in the long term.

At a more fundamental level, the question why does America have middling health outcomes despite being rich might well be misconstrued. There two ways to appreciate the significance of this observation. First, at higher income levels, income alone actually fails to predict longevity; in a formal statistical sense there is no statistical correlation between life expectancy and gdp per capita for the wealthiest thirty or forty countries.<sup>20</sup> Given that there is no statistical correlation between income and life expectancy for the very richest countries, income should not be used to predict health outcomes among the richest countries, because some other factor, or set of factors, drives the variation in life expectancy across those countries. Note that this logic, even if true for modern data, does not necessarily apply to the past. One hundred years ago, all countries, including the very richest ones, were much poorer. Another possibility is that there is so little variation in life expectancy across the richest countries that there is nothing for any statistical model to explain; it all could be random at the very top of international income distribution.<sup>21</sup>

---

<sup>20</sup>For example, regressing life expectancy against the log of per capita gdp for the richest 30 countries yields a negative coefficient on income (-.9092) with a t-statistic of 0.89. The same result is obtained when the level of per capita gdp is used instead.

<sup>21</sup>For the thirty countries with the highest per capita income, life expectancy varies from a low of 74.6 to a high of 82.9.

Second, and at the risk of undue repetition, in *Liberty and Public Health* I suggest that disease and income are both shaped by political institutions; both depend on, and are products of, the structure of the state. Whether it was the American commitment to federalism as embodied in the Constitution's Commerce Clause, the Fourteenth Amendment, popular beliefs about individual liberty and the appropriate functions of government, or a variety of institutions that fostered private property rights, the American constitutional order affected both income and the provision of public health disease prevention. If one accepts that income and disease are both determined by the same underlying institutions and ideological preferences, the question "why does the United States have middling health outcomes despite being so rich" is predicated on a false sense of causality, because the United States does not have middling health outcomes despite having a high income. Instead it has middling health outcomes for the same reason it is rich: because the institutions and ideological preferences that shape political and economic outcomes also shape health policies. To this way of thinking, the United States lags in the eradication of some diseases not despite being rich and free, but because it is rich and free.

The third and final path for making the history that follows relevant begins with the following observation. Today, when scholars look to Africa and other parts of the developing world, they often portray disease as the product of geography, tropical climate, poverty, and economic under-development. By contrast, in the rubric of *The Pox of Liberty*, preventable diseases are the result of choices, both public and private. In the same way societies choose to the quality of their schools, roads, police forces, militaries, and so forth, they also choose the

quality of their public health systems and the associated levels of infectious diseases. Geography, tropical climate, and even the level of economic development, are secondary concerns. Put another way, the logic of *The Pox of Liberty* suggests preventable diseases are the products of politics and individual preferences. In this setting, epidemiology is as much an exercise in political economy as it is in estimating statistical correlations. Understanding disease processes this way challenges the many scholarly claims that infectious diseases, and the biological processes that underlie the transmission of those diseases, have been inexorable forces in human history, beyond the control of either individual actors or states.