

“THAT CRIME AGAINST HUMANITY, VACCINATION”: TRACKING THE EXPANSION
OF PROGRESSIVE ERA POLICE POWER THROUGH THE SMALLPOX ANTI-
VACCINATION MOVEMENT IN THE UNITED STATES

by

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(Under the Direction of Akela Reason)

ABSTRACT

This thesis explores the connections between the turn of the century American smallpox anti-vaccination movement and the larger Progressive Era debates over government’s role in improving society. Using sources from across the United States, it argues that resistance to compulsory vaccination laws is specifically part of the overarching battle between citizens' individual liberties and a state’s police power to promote welfare. It concludes that while the smallpox anti-vaccination movement was unsuccessful in its goals to end compulsory vaccinations, these debates forced the U.S. Supreme Court to formally grant state governments the power to mandate public health policy.

INDEX WORDS: Smallpox; Anti-Vaccination; Police Power; Progressive Era; United States

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Introduction

Salus populi suprema lex esto—let the welfare of the people be the supreme law—penned Roman statesman Marcus Tullius Cicero circa 56 BCE.¹ Though Cicero was referring to what the duties of an effective Roman government should be, in true Roman fashion, this idea spread like wildfire across the Western world. Political histories of countries such as England, France, and the United States all feature fierce debates over the government’s role in the safety, happiness, and security of their citizens.² How much government interference should there be to ensure the welfare of its citizens? Is this even within the jurisdiction of a governmental body? If not, who does it fall to? Citizens? Private organizations such as churches? Though the answers to these questions are still being fought over today, they were amplified in times of crisis. Never more so than when the crisis features an invisible enemy that can kill thousands of people each year.

Disease, the silent killer, has consistently been one of the most powerful forces in changing how a government and society function. Acting as a double-edged sword, how a community responds to epidemics can reveal the ingenuity and fortitude of humanity while simultaneously highlighting a society’s disparities. There is no better disease to articulate this point than smallpox. Appearing in every civilization across the world, the *variola* virus is responsible for the deaths of millions of people. While the exact mortality rate is unknown, the

¹ The completion date of Cicero’s *De Legibus* is contested. The conventional date is 56 BCE, though the work could have been completed as late as 46 BCE given that it is referenced in texts from around this time. See Edward A. Robinson, “Cornelius Nepos and the Date of Cicero’s *De Legibus*,” *Transactions and Proceedings of the American Philological Association* 71 (1940): 531, <https://doi.org/10.2307/283141>.

² For England, see Nadja Durbach, *Bodily Matters: The Anti-Vaccination Movement in England, 1853–1907* (Durham, NC: Duke University Press, 2004). For literature on France see John H. Weiss, “Origins of the French Welfare State: Poor Relief in the Third Republic, 1871–1914,” *French Historical Studies* 13, no. 1 (1983): 47–78. <https://doi.org/10.2307/286593>. For the United States see Gordon S. Wood, *The Creation of the American Republic, 1776–1787* (Chapel Hill: University of North Carolina Press, 1998); Micheal McGerr, *A Fierce Discontent: The Rise and Fall of the Progressive Movement in America, 1870–1920* (Oxford: Oxford University Press, 2005).

Center for Disease Control estimates that from 1900 to 1977 alone, smallpox killed over 300 million people.³ Considering that there is evidence of smallpox scarring on Pharaoh Ramses V's mummy from circa 1157 BCE, the sheer devastation of this disease cannot be overstated.⁴

In the face of recurrent smallpox epidemics, communities across the globe actively sought a cure. Though there were differing approaches to this, many countries practiced variolation, otherwise known as inoculation. Dating back to sixteenth-century China, inoculation offered protection against smallpox by producing a milder version of *variola* than if one were to contract it organically.⁵ The process involved taking active smallpox microbes and inserting them into a healthy person's body. Often, this was done by creating a small incision on a patient's arm and inserting pus from an active smallpox wound into the cut. Though jarring by modern standards, this lifesaving practice would spread across the globe and be the chief prevention strategy in much of the world—including the United States—until 1796 when British physician Edward Jenner invented the smallpox vaccine. Instead of using viruses already active in human subjects, Jenner used cowpox material to create the vaccine. The shared properties between cowpox and smallpox virus meant that immunity could be gained by infecting patients

³ These numbers are hard to estimate because smallpox is such an old, widespread disease. While it is possible to look at archival materials and estimate the range of people killed in each epidemic, it is also true that the archive is selective in what it holds. This means that entire groups of people are not included in these sources. Moreover, though someone may not die directly from smallpox, the onset of health concerns following being ill with the disease is sometimes counted (and not counted) in death tolls. For these reasons—and more not listed—though the CDC estimates that 3:10 people died from smallpox, these numbers could be much higher. For article see “About Smallpox,” Center for Disease Control and Prevention, October 24, 2024.

⁴ Andrea M. McCollum et al., “Poxvirus Viability and Signatures in Historical Relics,” *Emerging Infectious Diseases* 20, no. 2 (February 2014), <https://doi.org/10.3201/eid2002.131098>, 177.

⁵ Important to note is that China is one possible option for where inoculation came from, but India is also suggested by some scholars. Indian inoculation was much more like what modern thinkers envision (i.e., infected pus placed in the skin) as opposed to Chinese practices. See Arthur Boylston, “The Origins of Inoculation,” *Journal of the Royal Society of Medicine* 105(7), 2012, 309-310, for a further discussion on this matter.

with either disease, though cowpox had a significantly lower mortality rate.⁶ In fact, during the 1721 Boston smallpox epidemic, Dr. Zabdiel Boylston reported the fatality rate for those who naturally contracted the disease was 14% but inoculated individuals experienced a mortality rate of only 2%.⁷

Despite statistical evidence in favor of variolization, many people were fearful of Jenner's work. Focusing specifically on anxieties within the United States, anti-vaccination sentiments were present following the introduction of immunization in America in 1799. Though many feared the implications of using animal matter, Jenner's original vaccine still had a human component. Referred to as "arm-to-arm transfers," only a few people in an area needed to be injected directly with the cowpox virus, for once they showed signs of smallpox (i.e., high fever or characteristic lesions) their blood with the appropriate antibodies would be transferred to other patients.⁸ This still offered immunity without too many citizens needing to come into direct contact with cowpox.

Arm-to-arm vaccination methods, however, slowly dissipated throughout the late 19th century after a series of smallpox epidemics ravaged the United States. Recognizing the growing demand for the vaccine, savvy and exploitative American businessmen created "vaccine farms"

⁶ Edward Jenner, *An inquiry into the causes and effects of the variolæ vaccinae, a disease discovered in some of the western counties of England, particularly Gloucestershire, and known by the name of the cow pox* (London, England: Samson Low, 1800).

⁷ See statistics from Dr. Boylston in Stefan Riedel, "Edward Jenner and the History of Smallpox and Vaccination," *Baylor University Medical Center Proceedings* 18, no.1 (2005), doi:10.1080/08998280.2005.11928028, 23.

⁸ Some anti-vaxxers also had concerns about the blood transfusion that occurred with both inoculation and vaccination. Like all aspects of this movement, the rhetoric behind fearing blood sharing is messy. Some reasons people feared this include ideas about the sanctity of the body brought about by Christian scientists and racialized fears of blood mixing (i.e., white Americans did not want their blood mixed with Black populations due to the one-drop rule). See Colgrove, *State of Immunity*, 45-80 and Margot Minardi, "The Boston Inoculation Controversy of 1721-1722: An Incident in the History of Race," *The William and Mary Quarterly* 61, no. 1 (2004): 47-76. <https://doi.org/10.2307/3491675>.

in the early 1870s. At these farms, they would artificially infect cows with cowpox to create the needed material to manufacture the smallpox vaccine.⁹ While there was always an air of mistrust and resistance to this medical advancement, the change in the manufacture and administration of the vaccine caused anti-vaccination efforts to skyrocket in the late 19th century.

At the same time companies changed how they got the ingredients for the vaccine, state governments responded to Progressive reformer's calls for a more active government. Exercising their police power, or "...the powers of a state legislature to pass laws that regulate private interests, properties, and liberties in the more general interest of public safety, health, comfort, order, morals, and welfare," numerous states implemented compulsory vaccination laws.¹⁰ These mandates were not new to the late 19th century. Boston, Massachusetts, for instance, passed a law in 1809 requiring vaccination for the general population. New, however, was the geographical extent of these immunization requirements, with over half of the states requiring some form of vaccination by 1912.¹¹ These mandates varied from state to state and often from city to city. For example, in 1902 the Board of Health in Cambridge, Massachusetts, required every person residing in city limits to be vaccinated against smallpox or face a \$5.00 fine, but Portland,

⁹ José Esparza et al., "Early Smallpox Vaccine Manufacturing in the United States: Introduction of the 'Animal Vaccine' in 1870, Establishment of 'Vaccine Farms', and the Beginnings of the Vaccine Industry," *Vaccine* 38, no. 30 (June 2020): 4773–79, <https://doi.org/10.1016/j.vaccine.2020.05.037>.

¹⁰ William J. Novak, "The American Law of Overruling Necessity: The Exceptional Origins of State Police Power," *States of Exception in American History*, 2020, <https://doi.org/10.7208/chicago/9780226712468.003.0005>, 104.

¹¹ J. W. Kerr, *Vaccination: An Analysis of the Laws and Regulations Relating Thereto in Force in the United States* (Washington DC: Government Printing Office, 1912.), 6.

Oregon only required immunization for those attending public school.¹² Policies such as these spurred action from various anti-vaccination groups.¹³

From roughly 1880 to 1904, back-to-back smallpox epidemics encouraged efforts to increase herd immunity (i.e., when most of a population develops immunity to a contagious disease which in turn protects said community's population numbers). Not only were more vaccines being produced than ever before, but compulsory vaccination laws dramatically increased in number. Though lawmakers of the time stated that they passed these laws in the name of the greater good, many Americans felt that disease prevention mandates pushed the boundaries of American citizens' guaranteed liberty. These concerns led to intense debates over a question that continues to define the American political and legal world: to what extent does the government have a role in helping shape and ensure its citizen's welfare?

This paper argues that the smallpox anti-vaccination movement at the turn of the 20th century was part of the larger reaction to Progressive Era debates about the role of government in improving society. Specifically, these debates are part of the sub-battle to define boundaries between individual rights and a state's police power. While the struggle between these two is not new to this era, compulsory vaccination laws enacted throughout the country pushed Americans to reconsider their civil liberties in light of the expanding power of state and federal governments. The fear of government encroachment coupled with anxieties that the ingredients in the vaccine could adversely affect one's health led to the development of various anti-

¹² *Jacobson v. Massachusetts*, 197 U.S. 11 (1905), <https://supreme.justia.com/cases/federal/us/197/11/>. Also see Robert Johnson, *The Radical Middle Class: Populist Democracy and the Question of Capitalism in Progressive Era Portland, Oregon* (New Jersey: Princeton University Press, 2003), 191-192.

¹³ Martin Kaufman, "The American Anti-Vaccinationist and Their Arguments," *Bulletin of the History of Medicine* 41, no. 5 (1967), 465.

vaccination groups who lobbied for the repeal of compulsory vaccination laws. Though their efforts had little success, their continued dissent forced the U.S. Supreme Court to formally give state governments the power to mandate public health policy in 1905. In this way, the smallpox anti-vaccination movement is yet another Progressive battleground between the contested ideas of liberty and welfare, the effects of which continue to shape modern public health policy.

When looking at the historiography of anti-vaccination movements, public health historians have traditionally relegated the anti-vaccination movement to the fringes of medical and legal histories. Among medical histories, Wilson G. Smillie's notable 1955 work, *Public Health: Its Promise for the Future; A Chronicle of the Development of Public Health in the United States, 1607-1914*, only mentions resistance to vaccination in passing.¹⁴ Touching on, but not intensely investigating anti-vaxxers was the norm until Martin Kaufman's 1967 piece, "The American Anti-Vaccinationists and Their Arguments." He was the first to investigate *who* these people were and consider their rhetoric for opposing immunization. Kaufman concluded that most anti-vaxxers were "irregular physicians," unlicensed citizens who practiced medicine and wished to propagate their own beliefs.¹⁵ Kaufman's analysis of who anti-vaxxers typically were would later be contested.¹⁶

Other studies over the last fifty years built on Kaufman's work by not only investigating the individualistic reasons (i.e., demographics) behind anti-vaxxers' resistance to compulsory

¹⁴ Wilson G. Smillie, *Public Health: Its Promise for the Future; A Chronicle of the Development of Public Health in the United States, 1607-1914* (New York: The Macmillan Company, 1955), 432-433.

¹⁵ Martin Kaufman, "The American Anti-Vaccinationist and Their Arguments," *Bulletin of the History of Medicine* 41, no. 5 (1967).

¹⁶ Nadav Davidovitch, "Negotiating Dissent: Homeopathy and Anti-Vaccinationism at the Turn of the Century," in *The Politics of Healing: Histories of Alternative Medicine in Twentieth-Century North America*, ed. Robert Johnson (London: Routledge, 2004), 11-28.

laws, but also connecting them to broader political movements. Briefly looking at some literature about the Progressive Era, William Novack wrote that this period is defined by deep divisions over the government's role in social, political, and economic reform.¹⁷ Beginning roughly in the 1890s and ending in the 1920s, Progressive reformers attempted to address the challenges brought on by industrialization, urbanization, and political corruption. Though their goals were broad, reformers advocated for better living and working conditions; sought to reduce corruption and increase the democratic power of the people; and campaigned for the regulation of big business to ensure fair competition and protect workers.¹⁸ To achieve these goals, Progressives called for a larger, more responsive government. In many ways, reformers were successful in their efforts. For example, Jane Addams' created the U.S.' first settlement house -- Hull House -- which gave the urban poor access to housing and education; the seventeenth and nineteenth amendments were added to the U.S. Constitution which allowed for the direct election of senators and women's suffrage, respectively; labor rights were improved with the switch to an eight-hour workday and limits on child labor; and the Sherman Anti-Trust Act helped the U.S. government break up monopolies.¹⁹ Other than the settlement house movement, the above reforms expanded government power.

¹⁷ William Novak, *The People's Welfare: Law and Regulation in Nineteenth-Century America* (Chapel Hill: University of North Carolina Press, 1996). For more Progressive Era literature that discusses this topic see Michael McGerr, *A Fierce Discontent: The Rise and Fall of the Progressive Movement in America, 1870-1920* (Oxford: Oxford University Press, 2005). For an intellectual history that investigates the boundaries between private and public affairs see Bradley C. S. Watson, *Progressivism: The Strange History of a Radical Idea*. (Notre Dame: University of Notre Dame Press, 2020).

¹⁸ Not all Progressive Era reformer's goals are listed here. Conservation and public health were also two large battlegrounds for reformers. For more information see Murray N. Rothbard, *The Progressive Era*, ed. Patrick Newman (Auburn, AL: Mises Institute, 2017).

¹⁹ See McGerr, *A Fierce Discontent: The Rise and Fall of the Progressive Movement in America*, 56-58, 294, 104-114, 144-145.

In response to this, William Novack suggested that American citizens perceived that the State was gaining access to all facets of life – labor, family, gender roles, healthcare, sanitation, et cetera – many of which were considered private affairs.²⁰ Working at the intersection of these ideas (i.e., anti-vaxxer’s motivations and larger political and socio-cultural events), many historians have analyzed anti-immunization supporters’ resistance to compulsory laws from the angle of populism, class conflict, and fear of scientific advancement.²¹ James Colgrove complicated matters even further in his book, *State of Immunity: The Politics of Vaccination in Twentieth-Century America*. He proposed the idea that many anti-vaccination supporters fought compulsory laws because of the implications they had for personal liberty.²² Considering the numerous understandings of why resistance happened, historian Karen L. Walloch’s 2015 book asserted that “...anti-vaccination eludes easy generalization,” but connects their motivations to a broader story about expanding state police power.²³ She analyzed *Jacobson v Massachusetts* (1905), which ruled that mandatory vaccination laws were within a state’s right to protect public health and safety. This case effectively halted anti-vaxxer’s legislative battles.

²⁰ Novak notes that the State has always had a say in the welfare of the people from the time of colonization onward. Unlike what we would see in the Progressive Era with a consolidation of power in federal/state governments, previous welfare laws were episodic and enforced by local officials. See Novak, *The People’s Welfare*, 1-19.

²¹ In order of discussion, Robert Johnson, *The Radical Middle Class: Populist Democracy and the Question of Capitalism in Progressive Era Portland, Oregon* (New Jersey: Princeton University Press, 2003), 177-220; Judith Leavitt, *The Healthiest City: Milwaukee and the Politics of Health Reform* (Madison: University of Wisconsin Press, 1982), 76-12; James Colgrove, *State of Immunity: The Politics of Vaccination in Twentieth-Century America* (Berkeley, California: University of California Press, 2006), 45-80.

²² Colgrove, *State of Immunity*, 17-44. Other scholars have also supported this idea of resistance to state authority being a key driving factor to the anti-vaccination movement. See Michael Willrich, *Pox: An American Story* (New York: The Penguin Press, 2011).

²³ Karen L. Walloch, *The Anti-Vaccine Heresy: Jacobsen v Massachusetts and the Troubled History of Compulsory Vaccination in the United States* (Rochester, NY: University of Rochester Press, 2015), 3.

Central to this paper is the expansion of state police power, which has been examined at length by legal historians of this period. In fact, in his 1982 piece, “State Courts and Protective Legislation during the Progressive Era: A Reevaluation,” Melvin I. Urofsky resituated the role of judiciary branches from the “...enemies of reform...” towards one that leaned “...consistently toward approval of a wide range of reform legislation,” primarily through its codification of a state’s police powers.²⁴ This reform legislation included child labor, safety measures, sanitization initiatives, and public welfare more broadly. The legal system as a friend of reformers remains popular within the modern legal histories of this period.²⁵ However, the discussion of public health in constitutional law histories often lacks an analysis of personal rhetoric and motivations behind the larger movement that allowed issue make it to the courts in the first place.

Two historians who do pay careful attention to both the actors themselves and their roles in Progressive Era tensions between personal liberties and state authority are James Colgrove and Karen Walloch. Despite investigations by these scholars, they rarely analyze this theme outside of three major cities in the Northeast. In fact, Walloch and Colgrove exclusively rely on information from Boston/Cambridge, New York City, and Philadelphia.²⁶ Historians Arthur Allen’s 2007 work *Vaccine: The Controversial History of Medicine’s Great Lifesaver* does consider this movement outside of the major cities in the Northeast; however, he only positions the movement within the growth of federal programs such as the Food and Drug

²⁴ Melvin I. Urofsky, “State Courts and Protective Legislation during the Progressive Era: A Reevaluation,” *The Journal of American History* 72, no. 1 (1985), <https://doi.org/10.2307/1903737>, 63-64.

²⁵ See Bruce W. Dearstyne, *The Crucible of Public Policy: New York Courts in the Progressive Era* (New York: University of New York Press, 2022) and Micheal Willrich, *City of Courts: Socializing Justice in Progressive Era Chicago* (Cambridge, MA: Cambridge University Press, 2003).

²⁶ For Colgrove’s *State of Immunity*, I am specifically referencing Chapters 1 and 2 where he discussed smallpox. Other cities are used in the rest of the book but are not relevant to this thesis.

Administration.²⁷ There is only one scholar who conducts a comprehensive view of the anti-vaccination movement, Michael Willrich.²⁸ Following in his footsteps, this project seeks to intervene by looking at anti-vaccination history and its connections to federal and state government's growing role in regulating public welfare across a larger geographic area than typically conducted. I will be using sources from across the U.S. to argue that the anti-vaccination movement was an expression of anti-Progressivism.²⁹

With this in mind, "Contextualizing Anti-Vaccination Efforts" will provide a brief overview of anti-vaccination – and anti-variolization – efforts in the United States before compulsory vaccination laws. "The State Intervenes: Compulsory Vaccination Laws" will investigate specific mandatory vaccination laws that resulted from advocacy for government interference. Following the backlash against these laws, "'A Curse and a Menace': Analyzing Anti-Vaxxer Motivations" will explore two interconnected fears surrounding compulsory vaccination laws. This paper culminates in "For the Good of the People?: Negotiating Police Power," with a discussion of how anti-vaccination efforts are connected to the larger debates of police power versus individual rights that effectively situated the notion of *Salus populi suprema lex esto* in the American legal code.

²⁷ Arthur Allen. "Chapter 3: Vaccine Wars: Smallpox at the Turn of the Twentieth Century," in *Vaccine: The Controversial History of Medicine's Great Lifesaver* (New York: University of Rochester Press, 2007), 72.

²⁸ See Michael Willrich, *Pox: An American Story* (New York: The Penguin Press, 2011). This book offers a comprehensive view of antivaxxer's motivations and connections to the broader Progressive Era. He uses sources from all regions of the US but does not state that this movement is specifically an expression of anti-Progressivism, though he does allude to it. As such, my paper is aimed at supporting Willrich's analysis with new evidence.

²⁹ While these sentiments were nationwide, the constraints of this paper mean that I will only have space to adequately address the Northeast. As such, the specific states that will be discussed are Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont. See US Census Bureau, "Geographic Terms and Definitions," Census.gov, December 16, 2021, <https://tinyurl.com/2nbr3wt3>.

Contextualizing Anti-Vaccination Efforts

“The small Pox! The small Pox! What shall We do with it?” John Adams penned to his wife Abigail on June 26, 1776.³⁰ Though the American Revolution would not officially begin for a fortnight, John Adams—chairman of the Board of War—prepared colonists' resources for the impending fighting.³¹ Aside from considering firepower and the number of young men available to the Continental Army, Adams was concerned with another destructive element of mankind: smallpox.

Considered to be one of the deadliest diseases in all human history, smallpox is a highly contagious, highly dangerous infectious disease. With an average duration of 10 to 14 days, smallpox infections typically begin with a low-grade fever that progresses into hundreds of pustules marring its victim's skin. These lesions first appear in the infected person's mouth and/or throat, which helps spread the virus to others when a contagious person coughs or sneezes onto an object. As the disease advances, these sores travel down the sick person's body, often leaking pus (see Figures 1 and 2 for images of smallpox progression). While these symptoms are not atypical for poxviruses, what made smallpox so fatal was its ability to structurally change cells in a person's circulatory system, respiratory system, or bone marrow.³² That is to say, as the disease progresses it fundamentally alters how one's body produces new, healthy cells, which effectively kills the infected person.

³⁰ John Adams to Abigail Adams, June 26, 1776, in Butterfield, Friedlaender, and Kline, *The Book of Abigail and John: Selected Letters of the Adams Family 1762-1784* (Cambridge: Harvard University Press, 1975), 138.

³¹ Butterfield Friedlaender, and Kline, *The Book of Abigail and John*, 135.

³² David Barrett Martin, “The Cause of Death in Smallpox: An Examination of the Pathology Record,” *Military Medicine* 167, no. 7, 2002: 546–551, <https://doi.org/10.1093/milmed/167.7.546>.



Figure 1: George Kirtland, “A comparison between smallpox and cowpox pustules on the 5th day of the disease,” Chromolithograph, *British Medical Association* (May 23, 1896), <https://wellcomecollection.org/works/bkkn62d>.

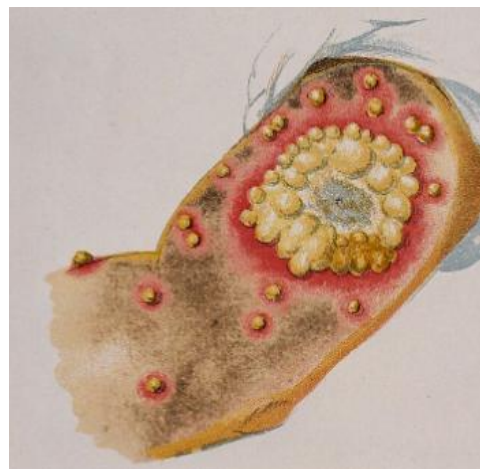


Figure 2: George Kirtland, “A comparison between smallpox and cowpox pustules on the 14th day of the disease,” Chromolithograph, *British Medical Association* (May 23, 1896), <https://wellcomecollection.org/works/ar3wytpf>.

Though *variola* rarely spreads through the air, anything an infected person sneezes on, coughs near, or effectively touches (i.e., bedding, clothing, paperwork, et cetera) can become carriers of the disease. Contributing to the abnormally high infection rates, the smallpox virus survives for up to 48 hours without a human host whereas viruses such as the common cold only last for around 24 hours.³³ If an infected person survived a visit from the ‘Speckled Monster,’ they would be left with lifetime immunity but could also have severe scarring, blindness, and other health conditions as a result.³⁴

The exact origins of the disease are unknown. The earliest known writings about a disease resembling smallpox are from fourth-century China as are some of the earliest prevention

³³ While it is uncommon, it is still possible to contract smallpox through microbes in the air. See “About Smallpox,” Center for Disease Control and Prevention, October 24, 2024, <https://www.cdc.gov/smallpox/about/index.html>.

³⁴ “About Smallpox,” Center for Disease Control and Prevention.

methods.³⁵ European countries took inspiration from India and inoculated by placing pus from an active smallpox wound into a small cut on the healthy person's skin.³⁶ No matter the method, inoculation would produce a less severe version of the disease and offer lifetime immunity once it had run its course. As *variola* continued to wreak havoc on entire populations and global trade/migration expanded, this practice would spread to nearly every country on Earth, including the United States.

Amidst a particularly brutal smallpox epidemic in 1721, Reverend Cotton Mather wrote in his diary that when "Inquiring of my Negro-man, Onesimus, who is a pretty intelligent fellow, whether he had ever had the smallpox, he answered both yes and no. He told me that he had undergone the operation which had given something of the smallpox and would forever preserve him from it, adding that it was often used in West Africa."³⁷ Mather researched Onesimus' claims and led a successful disease prevention campaign in Boston wherein the practice of inoculation would become a part of broader colonial medicinal practices.

Though inoculation was growing in popularity throughout the eighteenth century and offered protection from smallpox with a lower mortality rate, many rejected the practice.³⁸ This

³⁵ Important to note is that China is one possible option for where inoculation came from, but India is also suggested by some scholars. Indian inoculation was much more like what modern thinkers envision (i.e., infected pus placed in the skin) as opposed to Chinese practices. See Arthur Boylston, "The Origins of Inoculation," *Journal of the Royal Society of Medicine* 105(7), 2012, 309-310, for a further discussion on this matter.

³⁶ Boylston, "The Origins of Inoculation," 309-311.

³⁷ While Cotton Mather was learning of inoculation from his enslaved man Onesimus (see Cotton Mather, *Curiosities of the Small-Pox*, July 12, 1716, in G.L. Kittredge, *Some Lost Works of Cotton Mather* (Cambridge University Press, 1912), 422). British aristocrat and wife to the British ambassador to the Ottoman Empire, Lady Mary Wortley Montagu, observed the practice in Turkey. She promptly had her children inoculated against smallpox and wrote about her findings.

³⁸ Refer to Dr. Boylston's 1721 study for exact rates. See these statistics in Stefan Riedel, "Edward Jenner and the History of Smallpox and Vaccination," *Baylor University Medical Center Proceedings* 18, no.1 (2005), doi:10.1080/08998280.2005.11928028, 23.

perhaps is not a surprise given that this medical advancement was relatively new to English colonists during the eighteenth century and one would still have to endure smallpox infection. Regardless of personal beliefs, many historical actors who underwent variolization reported a stark difference from those who contracted it naturally. Returning to John Adams, shortly after his inoculation he had the following to say about the differences between the natural and inoculation smallpox survivors:

...those who have the [disease] by Inoculation in the new Method, for those who have it in the natural Way, are Objects of as much Horror as ever. There was a poor Man, and this neighborhood, Bass, now laboring with it, in the natural Way. He is in the Way of Recovery, but is the most shocking site that can be seen. They say he is no more like a Man than he is like a Hog or a Horse—swelled to three times size, black as bacon, blind as a stone ... This Contrast is forever before the Eyes of the whole Town, Yet it is said there are 500 Persons, who continue to stand it out, in spite of Experience, the Expostulations of the Clergy, both in private and from the Desk, the unwearied Persuasions of the selected Men, and the perpetual Clamor astonishment of the People, and to expose himself to the Distemper and in the natural Way!—Is man a rational creature think You?—Conscious, forsooth and scruples are the Cause.³⁹

From this letter, the tension between those who supported variolization and those who feared the practice is evident. While Adams asked his would-be wife, Abigail Smith, what sense those who opposed inoculation had, little did he know that these debates would only increase thirteen years later in 1777 when General George Washington “finding the smallpox to be spreading much and fearing that no precaution can prevent it from running through the whole of our Army... determined that the troops shall be inoculated.”⁴⁰ Riots, desertion, and general social outrage

³⁹ John Adams to Abigail Smith, April 17, 1764, in Butterfield, Friedlaender, and Kline, *The Book of Abigail and John: Selected Letters of the Adams Family 1762-1784*, 35.

⁴⁰ George Washington to William Shippen, Jr., February 06, 1777, in *The Papers of George Washington, Revolutionary War Series*, vol. 8, January 06, 1777–March 27, 1777, ed. Frank E. Grizzard, Jr. (Charlottesville: University Press of Virginia, 1998), 264.

followed this decision and set the stage for anti-vaccination sentiments following English doctor Edward Jenner's discovery of the smallpox vaccine in July 1796.

As the story goes, Jenner noticed that pustules "...frequently appear spontaneously on the nipples of Cows, and instances have occurred, though very rarely, of the hands of servants employed in milking being affected with sores in consequences... are of much milder nature to those [that] arise from that contagion which constitutes the true Cow Pox."⁴¹ Applying this idea to smallpox, Jenner conducted a series of trials over two years. He began by taking pus from an open cowpox wound from the arms/hands of a dairymaid, Sarah Nelms, and injected this material into the unaffected James Phipps. Following this altered inoculation, James Phipps only experienced a mild fever and some injection site pain but gained immunity from *variola*. This was proven when Jenner traditionally inoculated Phipps with the active smallpox virus around two months later and he did not develop any symptoms.⁴²

Presenting these findings in a pamphlet often called *The Inquiry*, Jenner began developing and marketing what would become a world-changing vaccine. The vaccine itself would soon make its way across the Atlantic thanks in part to the efforts of Harvard physician Benjamin Waterhouse. Hearing about the recent Jenner development, Waterhouse promptly requested a sample of cowpox matter from England and became the first person in America to vaccinate someone against smallpox. Word spread of this achievement, primarily due to Waterhouse's position at Harvard, and vaccination slowly became more common in the mid-19th century, though inoculation would still be the chief preventive practice until after the Civil War.

⁴¹ Jenner, *An inquiry*, 7-8.

⁴² Jenner, *An inquiry*, 10-13.

Though vaccination had gained popularity among American citizens, just like with inoculation, there was a large body of people who opposed this medical advancement. Anti-vaccination proponents were often worried about the potential side effects of using an “animal vaccine.” Extremists of this viewpoint expressed concerns that the person who was vaccinated with the cowpox virus would begin to express cow-like qualities. English artist James Gillray created a satirical piece about these very fears. In the image, Gillray shows a woman receiving a vaccination and cows erupting from the already vaccinated bodies of those behind her (see Figure 3). Extremists likewise believed that if you were to get vaccinated with the animal immunization, “... ladies might wander in the fields to receive the embraces of the bull,” thus producing cow-hybrid off-spring as shown in Figure 4.⁴³ Of course, these stories were rooted in fear, rather than scientific evidence.



Figure 3: James Gillray, *The cow-pock, or - The wonderful effects of the new inoculation!* - Vide - the Publications of ye Anti-Vaccine Society, hand-colored etching, London, 1802. From The Morgan Library and Museum's Gordon N. Ray Collection, (New York, 1987).

⁴³ Robert John Thornton, *Vaccinae vindicia; or, defence of vaccination containing a refutation of the cases, and reasonings on the same, in Dr. Rowley's and Dr. Moseley's late extraordinary pamphlets against vaccination...* (London: C. Whittingham, 1806), 5.



Figure 4: Robert John Thornton, “Effects Arising from Vaccination,” Illustration, in *Vaccinae vindicia; or, defence of vaccination containing a refutation of the cases, and reasonings on the same, in Dr. Rowley's and Dr. Moseley's late extraordinary pamphlets against vaccination...* (London: C. Whittingham, 1806).

Other, less fantastical, reasons for opposing the vaccination included fears of contracting another disease such as syphilis. While getting another illness via the smallpox immunization was possible, it was not because of the ingredients in the vaccine. Rather, there were often practitioner errors that helped spread syphilis.⁴⁴ Working before sterilization was commonplace, practitioners would not clean the lances between patients, meaning if one person had syphilis, then numerous people had the chance of getting it.

Regardless of these worries, as smallpox epidemics continued to decimate cities and citizens openly refused to be vaccinated, federal and state governments attempted to curb the infection rate by encouraging citizens to participate in disease prevention practices. The first instance of this was the 1813 “Act to Encourage Vaccination,” which granted the federal

⁴⁴ Charles C. Schieferdecker, *Dr. C.G.G. Nittinger's Evils of Vaccination* (Philadelphia: Printed by Henry Ashmead, 1856), 85-88. The Bible verse referenced from Corinthians– “Know ye not that ye are the temple of God, and that the Spirit of God dwelleth in you? If any man defile the temple of God, him shall God destroy; for the temple of God is holy, which temple ye are.”

government power to oversee the distribution of the smallpox vaccine. This act required the appointment of a federal agent whose duty was “...to preserve genuine vaccine matter, and to furnish the same to any citizen of the United States, whenever it may be applied for, through the medium of the post-office.”⁴⁵ The federal appointed agent attempted to restore confidence in this prevention method by mitigating vaccination errors such as wrongly measured serums. With this goal in mind, this act offered a cost-free way to get the vaccine through the post office. It was later repealed in 1822 after vaccine agent, James Smith, accidentally sent smallpox scabs instead of the cow virus to Tarboro, North Carolina, which resulted in the deaths of multiple people and undermined public trust in the vaccine.⁴⁶

While the act was repealed, it positively affected public perception of the vaccine, and the country enjoyed reduced rates of smallpox outbreaks. Historian Michael Kaufman estimates that “...the Jennerian method of immunization practically eliminated smallpox as a major threat to the United States ... [and] was widely accepted and used in the years from 1802 to 1840.”⁴⁷ This is not to say that smallpox was eradicated in the U.S., but rather that country experienced a significant increase in immunity. Unfortunately, this immunity would not last because the success of vaccination made the threat of smallpox fade to the backs of Americans’ minds with a whole generation of people having little lived experiences with the disease. The process of vaccination with its multiple lancets, recovery time, and the possibility of practitioner errors thus

⁴⁵ U.S. Congress, “An Act to encourage Vaccination,” February 27, 1813, in *U.S. Statutes at Large, Volume 2 - 1813, 6th through 12th Congress. United States - 1813, 1799*. Periodical. <https://www.loc.gov/item/lsl-v2/>, 806-807.

⁴⁶ James Colgrove, “Immunity for the People: The Challenge of Achieving High Vaccine Coverage in American History,” *Public Health Reports* 122, no. 2 (March 2007): 248–57, <https://doi.org/10.1177/003335490712200215>.

⁴⁷ Kaufman, “The American Anti-Vaccinationist and Their Arguments,” 463.

made immunization's risks outweigh the rewards for some. This in tandem with the popularization of new forms of nontraditional medicine (i.e., homeopathy, sanitation, and non-traditional medicine) once again led some citizens to oppose the vaccine throughout the 1850s and 1860s.

With increased anti-vaccine sentiments in the latter half of the 19th century, smallpox outbreaks once again began to pop up throughout the rapidly expanding U.S. Between 1865 and 1877 the country underwent a series of recurring epidemics with smaller outbreaks happening throughout the early 1900s.⁴⁸ In typical fashion, these epidemics killed thousands of Americans and left state governments grappling with interesting questions regarding disease prevention. Should they mandate vaccination? Should they provide any exemptions in these policies? The answers to these questions led to a complicated web of *de jure* and *de facto* responses.

It is important to understand that even though the struggle with smallpox was nationwide, and as such it may seem like the federal government should be responsible for answering these complicated questions; this was not the case. The U.S. Constitution's Tenth Amendment states "the powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people."⁴⁹ Vaccination laws, or laws regarding the health and welfare of citizens in general, therefore fall under the jurisdiction of the states. While it's true that the federal government encouraged vaccination in the early half of the century, that was the limit of its power: encouragement. Questions of how to prevent disease must then come from individual state governments, which created a messy, confusing, and often contradictory world of compulsory vaccination laws in the late 19th century.

⁴⁸ Kaufman, "The American Anti-Vaccinationist and Their Arguments," 469.

⁴⁹ U.S. Constitution, amend. 10.

The State Intervenes: Compulsory Vaccination Laws

Massachusetts was both the cradle of liberty and the cradle of smallpox prevention in the U.S. Not only was this state the first to practice inoculation, but it was also the first to administer a smallpox vaccination, the first to adopt a compulsory vaccination law, the first to repeal said law, and the first to create yet another compulsory law for the vaccination of school children.⁵⁰ Perhaps this comes as no surprise, for Boston was home to one of the first medical publications and medical societies in the U.S.⁵¹ Seeing as this state led the charge against smallpox, other state legislatures often looked towards Massachusetts' lawmakers and followed their example. By 1912, the following states had compulsory vaccination laws (Table I):

First iteration of compulsory vaccination laws (in order of date adopted)	Vaccination required for school attendance (in order of date adopted)
Massachusetts.....1809	Massachusetts.....1855
Connecticut.....1828	Maine.....1856
Maine.....1840	New York.....1860
New Hampshire.....1842	New Hampshire.....1861
Michigan.....1846	Marland.....1864
Rhode Island.....1857	Virginia.....1869
Vermont.....1860	Ohio.....1872
Virginia.....1860	Connecticut.....1878
New Mexico.....1862	North Carolina.....1879
Ohio.....1869	Georgia.....1880
Kentucky.....1873	Rhode Island.....1881
Colorado.....1877	Iowa.....1882
North Carolina.....1879	South Carolina.....1883
Minnesota.....1883	New Jersey.....1887
New York.....1885	California.....1889
West Virginia.....1887	Pennsylvania.....1895
Pennsylvania.....1889	Oregon.....1901
North Dakota.....1893	New Mexico.....1901
Georgia.....1897	West Virginia.....1905

⁵⁰ Samuel Bayard Woodward, "The Story of Smallpox in Massachusetts." *New England Journal of Medicine* 206, no. 23 (1932): 1181-91.

⁵¹ Woodward, "The Story of Smallpox in Massachusetts," 1180-81.

First iteration of compulsory vaccination laws (in order of date adopted)	Vaccination required for school attendance (in order of date adopted)
South Carolina.....1899	Montana.....1907
Mississippi.....1900	
Wyoming.....1901	NOTE: 20/48 states (42%)
Delaware.....1901	
Illinois.....1901	
Kansas.....1901	
Arizona.....1903	
Tennessee.....1905	
Alabama.....1907	
NOTE: 28/48 states (58%)	

Table 1: Compulsory Vaccination Laws. From J. W. Kerr, *Vaccination: An Analysis of the Laws and Regulations Relating Thereto in Force in the United States* (Washington DC: Government Printing Office, 1912.), 6.

The first column in this table indicates which states adopted general compulsory vaccination laws that gave municipal authorities the ability to make the call (i.e., when a city should/can mandate vaccines and whether immunizations should be mandated for prisoners or poor residents).⁵² The second column concerns specific requirements for children's school attendance in state-funded academies. The extent of these laws varied state by state. Concerning specifically column two, Connecticut would not expel admitted unvaccinated children from public schools, but Massachusetts and Colorado would.⁵³

As state powers cracked down on the dropping vaccination rates, citizens who were already skeptical of vaccination began to question the safety of immunization and the legality of such mandates. Groups such as the Anti-Vaccination Society of America (AVSA) formed as a

⁵² William Fowler, *Smallpox Vaccination Laws, Regulations, and Court Decisions* (Washington DC: G.P.O, 1927), 2.

⁵³ Fowler, *Smallpox Vaccination Laws, Regulations, and Court Decisions*, 3-4.

response. Inspired by an 1879 visit from fierce British anti-vaxxer William Tebb who opposed England's country-wide Vaccination Acts, the AVSA quickly established itself as the premier national anti-immunization group in the U.S. It produced a periodical called *Vaccination* in which it criticized the animal vaccine and compulsory laws.⁵⁴ Running parallel to the AVSA were more localized anti-vaccine groups such as the New England Anti-Compulsory Vaccination League, the Minneapolis Anti-Vaccination League, and the Anti-Vaccination League of Pennsylvania.⁵⁵ Though these groups fought the compulsory vaccination laws, John Pitcairn, president of the Anti-Vaccination League of America, proclaimed that these groups' goals went beyond legislative means. He stated that they sought "...to show the truth concerning vaccination" which he claims was "...the cause of truth, the cause of freedom, the cause of humanity."⁵⁶ Why did these groups form now and not earlier in American history? Why did citizens rush to join these anti-vaccination groups? It was in part due to the fear of the vaccine itself and more philosophically, fear of government encroachment on civil liberties.

"A Curse and a Menace": Analyzing Two Anti-Vaxxer Motivations

In 1895, member of the Anti-Vaccination Society of America Dr. Montague Levenson boldly stated "...vaccination has not only wholly failed to prevent or modify an attack of smallpox but it has caused more disease and death than smallpox ever has done."⁵⁷ Dr. Levenson's evaluation of the vaccine represents one of the most prevalent criticisms leveled at Jenner's creation. Largely born out of unfamiliarity with science, anti-immunization supporters

⁵⁴ Kaufman, "The American Anti-Vaccinationist and Their Arguments," 465.

⁵⁵ Walloch, *The Antivaccine Heresy*, 4.

⁵⁶ John Pitcairn, *Vaccination* (Philadelphia, PA: Anti-Vaccination League of Pennsylvania, 1907), 8.

⁵⁷ Montague Levenson, "Vaccination," *The Providence News* (Providence, RI), July 25, 1895.

argued that not only was the smallpox vaccine ineffective at reducing the rates of *variola*, but it also caused more death and destruction due to its impure animal matter.⁵⁸

Beginning with claims that vaccination does not work, some proponents of antivaccination understood immunization as working outside of their accepted contagion theory. Anti-vaxxers subscribed to the miasmatic theory of contagion, which stated that diseases spread through “bad air.” To understand and accept vaccination, one must believe in germ theory -- the notion that specific microorganisms cause diseases. Developed by French chemist Louis Pasteur in 1861, it did not gain wide acceptance in the American medical field until the early 20th century.⁵⁹ Since most anti-vaxxers did not understand germ theory, vaccination and its supposed relationship with cowpox material was a ridiculous idea.

Those who supported the miasmatic theory favored sanitation as a disease prevention strategy, thus leaving them skeptical of vaccination. While not entirely wrong in their assessment of hygiene’s impact on disease because sanitation efforts can prevent water-borne illnesses such as cholera or dysentery, funding public infrastructure projects does little to combat the spread of smallpox.⁶⁰ Whereas cholera epidemics can begin because a person ingests diseased food or water sources, smallpox is transferred almost exclusively from human-to-human contact. This means that while cleaning items touched by someone with smallpox might help slow its spread, local governments could not just improve sanitation to stop the illness from spreading.

⁵⁸ Pure animal matter referenced the cowpox virus that happened organically. Impure animal matter refers to the collection of glycerin from cowpox that vaccine farms intentionally infected their livestock with.

⁵⁹ Nancy J. Tomes, “American Attitudes toward the Germ Theory of Disease: Phyllis Allen Richmond Revisited,” *Journal of the History of Medicine and Allied Sciences* 52, no. 1 (January 1, 1997), <https://doi.org/10.1093/jhmas/52.1.17>, 20-24.

⁶⁰ Walter Lloyd, “Sanitation and Small-Pox,” *The Westminster Review* (1889), <https://people.wku.edu/charles.smith/wallace/zLloyd1898.pdf>, 549-551.

Regardless, anti-vaxxers continually cited sanitation and hygiene as being the chief concerns in disease prevention. For example, Dr. Alfred Russell Wallace stated, “the conditions which especially favour [smallpox] are foul air and water, decaying organic matter and other unwholesome surroundings, whence they have been termed 'filth diseases.’”⁶¹ Similarly, Mr. A. W. Hutton proclaimed that “small-pox is known to be a dirt disease, one that haunts ill-drained, ill-ventilated, and uncleaned tenements,” and as such both men cited sanitation as a better prevention strategy than vaccination.⁶² Though these remarks were made about England’s messy fight over their compulsory vaccination laws, the AVSA published sentiments such as “...when smallpox comes, as come it must in bad sanitation...” in their August-September 1898 edition of the periodical, *Vaccine*.⁶³ Claims such as these show that one branch of anti-vaccination sentiment believed that immunization was simply ineffective because the miasma theory suggested that sanitation was a better disease prevention strategy. Compulsory mandates then were presumably unneeded and ill-advised.

Aside from some anti-vaxxers claiming that the vaccination did not work, many who supported the anti-vaccination movement did so out of fear that Jenner’s product was harming people rather than helping them. These ideas often stemmed from knowing someone who had adverse effects from the vaccine or reading countless accounts of people’s bad experiences. For example, writing to the *Vaccination*, L.H. Piehn recounted how his daughter, Alma, was killed

⁶¹ Alfred Russell Wallace, *Vaccination a delusion: its penal enforcement a crime, proved by the official evidence in the reports of the Royal Commission* (London: Swan Sonnenschein & Co, 1898), in Walter Lloyd, “Sanitation and Small-Pox,” *The Westminster Review* (1889), <https://people.wku.edu/charles.smith/wallace/zLloyd1898.pdf>, 550.

⁶² Lloyd, “Sanitation and Small-Pox,” 550.

⁶³ Anti-Vaccination Society of America, *Vaccination: A Journal of Health, Justice and Liberty*, vol 1, 7 (August-September 1898), <https://hdl.handle.net/2027/hvd.32044103027470>, 7.

by the vaccine, and he urged parents not to immunize their children.⁶⁴ Moreover, a local New Haven, Connecticut newspaper, *The Daily Morning Journal and Courier*, shared accounts of cases where “...irreparable damage to the health of the vaccinated persons,” occurred after being immunized.⁶⁵ These damages included skin diseases, fevers, scarring, and in Alma’s case, death. Stories such as this littered local and national accounts and contributed to people’s vaccine hesitancy.

Also contributing to this hesitancy, was the fact that it was not just common citizens who viewed the vaccine as dangerous. When interviewing medical professionals on their opinions of these vaccinations, the July 1895 edition of the *New York Dispatch* included accounts of doctors skeptical of vaccination. For example, Dr. Schieferdecker viewed immunization as a “...method of wholesale devastation which sends thousands annually to premature graves;” Dr. Mitchell thought that “vaccination did not protect against smallpox, but was followed by blindness and scrofula;” Professor Bock claimed that in his “...forty years [of] practice, [he’s] seen far more evil than good from vaccination;” and Dr. Stowell simply responded that vaccination is a “...a curse to humanity.”⁶⁶ Support from physicians only fueled the anti-vaccination movement and contributed to the largely false claims that the vaccine spread other illnesses to the immunized.⁶⁷

⁶⁴ Anti-Vaccination Society of America, *Vaccination: A Journal of Health, Justice and Liberty*, vol 1, 3 (April 1898), <https://hdl.handle.net/2027/hvd.32044103027470>, 3.

⁶⁵ “Against Vaccination Law: Fight for its Repeal to be Made.” *The Daily Morning Journal and Courier* (New Haven, CT). November 08, 1902

⁶⁶ “Are We All Poisoned?: Vaccination Denounced.” *New York Dispatch*. May 1, 1870.

⁶⁷ Important to note is that if the administer of the vaccine did not follow proper protocol, those seeking to be vaccinated could get other diseases such as syphilis. This is because if you share lancets and needles, other diseases not produced by the vaccine can be transferred. A lot of the time there was a false connection between the vaccine and these incidents.

To try and combat these fears – and limit the amount of physician errors in vaccination – Congress passed the 1902 Biologics Control Act. Predating the Pure Food and Drug Act, manufacturing companies were subjected to an annual inspection by federal agents, had to possess a license to create and sell vaccines, and had to have a scientist supervise the production of materials.⁶⁸ Despite this groundbreaking federal regulation of biological products – the first of its kind – the smallpox vaccine’s reputation was already tarnished in the eyes of many, for it was perceived as ineffective at best and dangerous at worst.⁶⁹

With compulsory vaccination laws on the books and the fear of dying or being maimed growing, the anti-immunization movement quickly began questioning the legality of these laws. Citing Americans’ “...certain unalienable Rights, that among these are Life, Liberty and the pursuit of Happiness,” some anti-vaxxers felt that their personal liberty was being infringed upon.⁷⁰ If American citizens were supposedly free from authoritative restrictions on expression, behavior, religion, speech, and general way of life – as outlined in the Declaration of Independence and Constitution – then how was it legal for state governments to enforce mandatory disease prevention strategies? Grappling with this question, a substantial amount of anti-vaxxer sources reflected this growing concern. These concerns over liberty can be sorted into two categories. The first is that some anti-vaccinationists did not object to immunization as a medical practice, just the compulsory nature of the mandates, while the second category of people objected to vaccines as a preventive practice and the state’s mandatory laws.

⁶⁸ An Act of July 1, 1902, Public Law 57-244 to Regulate the Sale of Viruses, Serums, Toxins, and Analogous Products in the District of Columbia, to Regulate Interstate Traffic in Said Articles, and for Other Purposes §, Public Law 57-244: 32 STAT 728 (1902).

⁶⁹ Kaufman, “The American Anti-Vaccinationist and Their Arguments,” 470-472.

⁷⁰ Thomas Jefferson, et al, *Declaration of Independence*, July 04, 1776, <https://www.loc.gov/item/mtjbib000159/>.

Beginning with the first category, many supporters of this notion were specifically concerned with the second wave of compulsory laws targeting school-aged children. The thought process behind mandates for children was twofold. Not only would this help limit the spread of smallpox because school classrooms featured close contact with many new people, but it also allowed for longevity in herd immunity. By 1902, 42% of states had vaccination requirements for enrollment in public school.⁷¹ Unlike previous compulsory laws where there was often an option to pay a fine to avoid getting the vaccine, children either received the smallpox immunization or could not attend school. Aside from children not being able to receive free education through the State, not enrolling children in school was in direct violation of compulsory laws surrounding school attendance. In 1902, during the height of the smallpox epidemics when many compulsory vaccination laws were drafted, the U.S. Bureau of Education's commissioner's report wrote that 31 out of 46 states required school attendance for children.⁷² The ages for mandatory school attendance are as follows (Table II):

Age Range for Mandatory School Attendance by State (A-L)	Age Range for Mandatory School Attendance by State (M-N)	Age Range for Mandatory School Attendance by State (O-W)
Alabama.....N/A	Maine.....7-14	Ohio.....8-14
Arkansas.....N/A	Maryland.....8-16	Oklahoma.....N/A
California.....8-14	Massachusetts.....7-14	Oregon.....8-14
Colorado.....8-16	Michigan.....8-15	Pennsylvania.....8-16
Connecticut.....7-16	Minnesota.....8-16	Rhode Island.....7-15
Delaware.....N/A	Mississippi.....N/A	South Carolina.....N/A
Florida.....N/A	Missouri.....N/A	South Dakota.....8-14
Georgia.....N/A	Montana.....8-14	Tennessee.....N/A

⁷¹ J. W. Kerr, *Vaccination: An Analysis of the Laws and Regulations Relating Thereto in Force in the United States*, 6.

⁷² United States Department of Education, *Commissioner's Report on Education* (Washington DC: Government Printing Office, 1902), LXIX. These laws were largely created as a pushback against child labor. This was a chief reform measure during the Progressive Era (i.e., limiting child labor), so by making school attendance mandatory, child labor would hopefully decrease. Interestingly, most Southern states did not pass compulsory attendance laws until post-1905 with Mississippi being the last to pass a law in 1918.

Idaho.....	8-14	Nebraska.....	7-15	Texas.....	N/A
Illinois.....	7-14	Nevada.....	8-14	Utah.....	8-14
Indiana.....	7-14	New Hampshire.....	8-14	Vermont.....	8-15
Iowa.....	7-14	New Jersey.....	7-12	Virginia.....	N/A
Kansas.....	8-15	New York.....	8-16	Washington.....	8-14
Kentucky.....	7-14	North Carolina.....	N/A	West Virginia.....	N/A
Louisiana.....	N/A	North Dakota.....	8-14	Wisconsin.....	7-14
				Wyoming.....	7-16

Table 2: Compulsory School Attendance Age Ranges. United States Department of Education, *Commissioner's Report on Education* (Washington DC: Government Printing Office, 1902), LXIX. Note that in 1902 the US only had 46 states.

With these compulsory attendance laws in effect, the new required immunization left many parents outraged. Especially because the wording of compulsory vaccination laws only allowed exemptions for children who previously had smallpox.⁷³ For example, Pennsylvania's 1895 act stated:

All principals or other persons in charge of any public, private, parochial, Sunday or other schools are hereby required to refuse admission of any child to the schools under their charge or supervision except upon a certificate signed by a physician, setting forth that such child has been successfully vaccinated or that it has previously had small-pox.⁷⁴

Though the laws themselves did not leave many loopholes for parents who did not want to vaccinate their children, in many communities, there was apathy about enforcing them. In fact, when investigating the New York Board of Health 1887 report, historian John Duffy found unvaccinated "...children were allowed to leave the school and often were admitted to another public school where the principal was equally lax about enforcing [vaccinations]."⁷⁵ Moreover, in regions such as the Southeast where there were no compulsory attendance laws, parents could simply stop sending their unvaccinated children to school. This was a particular concern of

⁷³ John Duffy, "School Vaccination: The Precursor to School Medical Inspection," *Journal of the History of Medicine and Allied Sciences* 33, no. 3 (1978), <http://www.jstor.org/stable/24625537>, 345-348.

⁷⁴ Pennsylvania General Assembly, Act of Jun. 26, 1895, P.L. 350, No. 258, Cl. 11.

⁷⁵ Duffy, "School Vaccination," 347.

Secretary Richard H. Lewis of the North Carolina Board of Health who mused, “One practical difficulty on educational lines now is to get the children to go to school at all.”⁷⁶

Though there were loopholes in these laws, parents were still angered by the principle of the matter. Not only did compulsory vaccination laws infringe upon the personal liberty of American citizens (i.e., the children), but they also challenged parents’ liberty to make choices for their kids. At a city council meeting in Chambersburg, Pennsylvania, a localized anti-vaccination group formed in opposition to these laws. One father in attendance declared that “...should his child be kept away from school, he would prosecute the school board for depriving the little one of educational advantages secured to it under the constitution.”⁷⁷ Though the Constitution does not secure access to education, the article goes on to state that many parents in the town “...have emphatically declared that their children should not be vaccinated” because they feel that it is simply not within the state’s rights to tell them how they should medically care for their children.⁷⁸

Interestingly, some of the very accounts that call for the repeal of compulsory vaccination laws for school enrollment are careful to explain that their reason for doing so has little to do with opposition to the prevention strategy. Turning towards the fight to strike down the law in Connecticut, a group composed primarily of parents formed, the Anti-Compulsory Vaccination League. Choosing the name of this anti-vaccination group proved to be difficult because

⁷⁶ *Seventh Annual Report of the North Carolina Board of Health, 1887-1889* (Raleigh, NC: Edwards and Broughton Printers and Binders, 1899), 31-32.

⁷⁷ There is no mention of education in the Constitution, so he was likely alluding to ideas of liberty and choice. See “Will Oppose Vaccination: Society Forming in Chambersburg to Fight New Rules. Have Counsel Enraged,” *Fulton County News* (McConnellsburg, Pennsylvania), September 20, 1905.

⁷⁸ “Will Oppose Vaccination: Society Forming in Chambersburg to Fight New Rules. Have Counsel Enraged,” *Fulton County News* (McConnellsburg, Pennsylvania), September 20, 1905.

members did not want to “... place the league in total opposition to vaccination.”⁷⁹ Rather, these parents wanted the focus of their efforts to be on the legality of immunization mandates. Examples such as these indicate that this battle was more philosophical for some of its participants than other branches of the anti-vaccination movement examined.

However, some anti-vaxxers combined the two main driving forces, calling upon compulsory vaccinations to end because they were dangerous and because they infringed upon civil liberties. For instance, James Peebles declared that “the vaccination practice ... has not only become the chief menace and gravest danger to the health of the rising generation but likewise the crowning outrage upon the personal liberty of Americans.”⁸⁰ The AVSA were supporters of this stance as well with their periodical often devoting space to discussion of how boards of health always look for chances to poison school children with the vaccine and that “...liberty is retained only by unceasing vigilance.”⁸¹

This message of ensuring liberty through collective resistance did not extent to immigrant communities in the U.S. Upon arrival to the U.S., they were often forcibly vaccinated with little to no outcry from non-minority communities. For example, in 1889, a Cunard Steamship Company passenger boat sailed from Queenstown, Ireland, to Boston, Massachusetts. Three days into the journey, the ship’s physician completed a medical inspection of seventeen-year-old Mary O’Brien and failed to find a smallpox vaccination scar. Following protocol, he completed

⁷⁹ “Against Vaccination Law: Fight for its Repeal to be Made.” *The Daily Morning Journal and Courier* (New Haven, CT). November 08, 1902.

⁸⁰ James M. Peebles, *Vaccination, a Curse and a Menace to Personal Liberty: With Statistics Showing Its Dangers and Criminality* (California: Peebles Publishing Company, 1900), 5.

⁸¹ Anti-Vaccination Society of America, *Vaccination: A Journal of Health, Justice and Liberty*, vol 1, 8 (October 1898), <https://hdl.handle.net/2027/hvd.32044103027470>, 8.

the smallpox immunization, but without the verbal consent of Mary O'Brien. She would later testify before the Supreme Judicial Court of Massachusetts in *O'Brien v. Cunard Steamship Company* (1891) that this forced vaccination constituted as assault.⁸² Though Cunard Steamship Company was found liable for injuries caused to Mary O'Brien, forced vaccination of immigrants did not end in 1891. In fact, in 1894 U.S. quarantine restrictions made vaccination a pre-requisite for entering the country.⁸³ This meant that at high traffic immigration ports such as Ellis Island, immigrants were often pressured into receiving the smallpox vaccination or risk being denied entry into the United States.

While the consent behind receiving vaccination at places like Ellis Island was shaky at best, some immigrant communities did not even get the chance to passively consent to immunization. Following an 1899 smallpox outbreak in Laredo, Texas, Acting Assistant Surgeon H.J. Hamilton directed local law enforcement to "...issue some law compelling vaccination, by force if necessary."⁸⁴ Eager to comply, Texas health officer W.T. Blunt targeted citizens of Mexican descent. He fumigated their homes, dragged them to pesthouses, and forcibly vaccinated Laredo residents, but not without fierce protests from the town. Blunt called in the Texas Rangers to help him deal with the resistance which resulted in one dead, thirteen injured, and fifteen arrested.⁸⁵

⁸² *O'Brien v. Cunard Steamship Company*, 154 MA 272 (1891).

⁸³ "The United States Quarantine Laws and Regulations," *Annual Report of the Supervising Surgeon General of the Marine-Hospital Service of the United States for the Fiscal Year 1894* (Washington, 1894), 252.

⁸⁴ Carlos E. Cuéllar, "Laredo Smallpox Riot," *Handbook of Texas Online* (Texas Historical Association, 2022), <https://www.tshaonline.org/handbook/entries/laredo-smallpox-riot>.

⁸⁵ Cuéllar, "Laredo Smallpox Riot."

Both Mary O'Brien and the smallpox riots in Laredo, Texas, show that while some Americans were concerned about compulsory laws effecting their civil liberties in a philosophical sense, the effects of these laws directly lead to the forced vaccination of vulnerable communities. With unrest growing about the State's ability to exercise more authority over healthcare, protesters began to use their legal right to sue.

For the Good of the People?: Negotiating Police Power

Instead of simply accepting increased state authority in healthcare, citizens began to push back against compulsory vaccination laws in a variety of ways, but their main avenue for resistance was via the courts. Choosing the courts as the primary means of resistance was not singular to the fight against state authority in public health. Rather, when American citizens felt that a state liberally exercised its police power, the courts became a battleground. One of the earliest cases that revolved around this was *Brown v. Maryland* (1829). This case was tried before the U.S. Supreme Court after the state of Maryland tried to impose discriminatory taxes on imported goods. Local officials argued that it had the right to impose taxes on goods within its jurisdiction, as part of its police power to regulate commerce and raise revenue. However, in a 5-4 ruling, the Supreme Court gave Congress the exclusive power to regulate interstate and international trade, not individual states. This case also used the word police power for the first time.⁸⁶

With this term now in the legal lexicon, other cases began to define issues around this idea. For example, *Commonwealth v. Alger* (1851) investigated the scope of police power over property rights, deciding that local governments could regulate private property in the interest of

⁸⁶ *Brown v. Maryland*, 25 U.S. 419 (1827).

public welfare and *People v. Budd* (1889) ruled that the state can intervene in business when it is tied to the public interest.⁸⁷ The scope of when and how a state could use police power continued to grow and be redefined throughout American history. The courts would be packed with issues related to this come the end of the 19th and early 20th centuries.

Marked by debates over the role of federal and state governments in daily life, the Progressive Era was a political and social reform movement centered on the tensions between federalism and state police power. In fact, many of the key issues that defined this period such as child labor, immigration, women's rights, food safety, sanitation, public health, and political corruption all have roots in the extent to which state governments can and should enforce policies. For example, *Hammer v. Dagenhart* (1918) revolved around this very tension, specifically as it relates to child labor. In response to Americans requesting the government to step in and help regulate child labor, Congress passed the Keating-Owen Child Labor Act in 1916. This act limited children's working hours and prohibited the interstate sale of goods produced by child labor.⁸⁸ Arguing that the Keating-Owen Child Labor Act violated both the personal liberty of Roland Dagenhart and his children, this case made it to the Supreme Court largely because of the questions that it raised about states' rights to regulate labor within their jurisdictions. In a 5-4 decision, the Keating-Owen Child Labor Act was struck down because "there is no power vested in Congress to require the States to exercise their police power so as to prevent possible unfair competition."⁸⁹ That is to say, child labor was a matter for local states,

⁸⁷ *Commonwealth v. Alger*, 7 Cush. 53, 61 Mass. 53 (1851). Also see *People v. Budd*, 117 N.Y. 1-29 (1889).

⁸⁸ An act to prevent interstate commerce in the products of child labor, and for other purposes, September 1, 1916; Enrolled Acts and Resolutions of Congress, 1789-; General Records of the United States Government; Record Group 11; National Archives.

⁸⁹ *Hammer v. Dagenhart*, 247 U.S. 251 (1918)

not the federal government. As such, this case was part of the long series of judicial proceedings about the boundaries between federal and state power.

While anti-Progressives litigated cases about perceived federal encroachment on state power, some Americans opposed the new interventionist State as a whole. They attempted to limit both federal and state governments' reach into their autonomy over a wide range of issues. A case that exemplified the pushback was *Lochner v. New York* (1905). Opponents argued that state regulations limiting bakers' working hours infringed on individuals' liberty to negotiate their working conditions, a position the U.S. Supreme Court upheld.⁹⁰ A victory for anti-Progressives, this case highlights how citizens pushed back against state involvement in what many considered private matters, such as employment.

Though the previous two cases represent victories for the anti-Progressives, they were not always successful. Particularly in the arena of health, people who opposed an interventionist State often failed. The most popular example of this begins with muckraker Upton Sinclair's visit to the Union Stock Yards in Chicago, Illinois. Following his tour of the meat-packing facilities, Sinclair condemned the pork industry. He described the spoiled meat being sold, workers' blood that splattered into canned goods, and the thousands of rats that raced across the soggy piles of meat on the floor.⁹¹ This account combined with other muckrakers such as Samuel Hopkins Adams who wrote about "gullible America" spending millions of dollars on the "Great American Fraud," cure-all elixirs, inspired Progressive reformers to demand government intervention into food and medicine.⁹² These efforts culminated in the creation of the Food and

⁹⁰ *Lochner v. New York*, 198 U.S. 45 (1905)

⁹¹ Upton Sinclair, "Chapter 14," in *The Jungle* (New York: Doubleday, Jabber, and Co., 1906).

⁹² Samuel Hopkins Adams, "The Great American Fraud: The Patent Medicine Evil," *Collier's Magazine*, October 07, 1905.

Drug Administration (FDA) in 1906. The establishment of the FDA was a significant achievement for Progressive reforms in terms of state intervention, but it was far from the only reform. Other notable Progressive measures included women's suffrage, state and income taxes, child labor laws, prohibition, and anti-prostitution efforts.

No matter the cause, one thing was clear: the larger the pushback against the policy the more attention the highest court in the U.S. gave it. This pushback often took the form of localized court cases, protests, or social debates. Turning back to the issue of compulsory vaccination laws, almost every state had examples of resistance to laws related to *variola*. For example, in 1894 a Milwaukee-based mob of approximately "...3000 "furious" people armed with clubs, knives, and stones," stopped health officials from forcibly transferring a child with smallpox to the hospital.⁹³ Moving smallpox patients out of homes and into hospitals was a compulsory law in this city; however, even after the child died, protestors still refused to let local health officials touch the body.⁹⁴ This pattern of resistance extended into the courtroom when protestors in Utah and Wisconsin successfully limited State involvement in vaccination – for a limited time.⁹⁵

Like other Progressive Era issues, anti-vaxxers' efforts had mixed results. While the above instances signal success for the anti-vaxxer campaign, *Morris v. Columbus* (1898) upheld a Georgia law that local cities have the right to compel smallpox vaccination and the decision in

⁹³ Judith W. Leavitt, "Politics and Public Health: Smallpox in Milwaukee, 1894-1895," *Bulletin of the History of Medicine* 50, no. 4 (1976), <http://www.jstor.org/stable/44450375>, 558.

⁹⁴ Leavitt, "Politics and Public Health," 558-560.

⁹⁵ For reference to Utah and Wisconsin resisting compulsory laws see RM Wolfe and LK Sharp LK. "Anti-vaccinationists past and present," *BMJ* 325 no. 7361:430-2. (2002) doi: 10.1136/bmj.325.7361.430.

Abeel v. Clark (1890) maintained a similar law in California.⁹⁶ Not deterred, anti-vaxxers continually showed dissent at the turn of the century. For example, Maine's State Board meetings were infiltrated by anti-vaccinationists who reported misleading claims to anti-vaccinationist publications; some residents in New Jersey vocalized disapproval to mandatory vaccinations after several children died from tetanus after they received the vaccine in 1901; popular New York-based print media, *Puck*, produced and republished many cartoons related to anti-vaccination debates (see Figure 5); and Vermont-born James M. Peebles published one of the most prominent anti-vaccination accounts, *Vaccination, a Curse and a Menace to Personal Liberty: With Statistics Showing Its Dangers and Criminality*.⁹⁷



Figure 5: Joseph Keppler, “Better Not Vaccinate Than Vaccinate with Impure Virus,” Illustration, *Puck* vol 7, no 171 (June 16, 1880), <https://philamuseum.org/collection/object>

⁹⁶ *Morris et al v. City of Columbia*, 102 Ga. 792 (1898) and *Abeel v. Clark*, 84 Cal. 226 (1890).

⁹⁷ In order of appearance: Anti-Vaccination Society of America, *Vaccination*, 37.; “Vaccination Prohibited: Camden Board of Health Investigates Fatal Tetanus Cases, Parents Are Panic-Stricken,” *Passaic City News* (Passaic, NJ), November 23, 1901.; Peebles, *Vaccination, a Curse and a Menace to Personal Liberty*.

/83741. This was a satire on the fears of anti-vaccinationists but nonetheless indicates that this was such a widespread issue that political cartoons could be created from it.

Though by no means a complete list of resistance to these laws, instances such as these reveal that there were vocal anti-vaxxers across the U.S. The widespread pushback to anti-vaccination laws could no longer be ignored, especially considering governmental action on other police power issues (i.e., issues of school attendance, commerce laws, and child labor). As such, the legality of compulsory vaccination laws made it to the Supreme Court with *Jacobson v. Massachusetts* (1905).

Following Massachusetts' renewed compulsory vaccination requirements in 1902, Henning Jacobson refused to immunize himself or his son. An almost perfect summation of the two major thought processes behind the anti-vaccination movement, Jacobson opposed the compulsory laws on both medical and philosophical principles. He was a Swedish immigrant who had adverse reactions to the smallpox vaccine as a young child when he was forced to receive it under Sweden's compulsory laws. Believing that he and his son must have had some kind of genetic mutation that caused the ill effects of the vaccine, he not only refused vaccination but also refused to pay the five-dollar fine associated with not immunizing. Jacobson objected to these legal mandates because compulsory vaccinations were "...unreasonable, arbitrary and oppressive..." and a clear violation of the liberties laid out in the Fourteenth Amendment.⁹⁸

The state of Massachusetts did not agree with Jacobson. In a 7-2 ruling, the Supreme Court of the United States decided that compulsory vaccination laws did not violate the Fourteenth Amendment if they did not "...go so far beyond what was reasonably required for the

⁹⁸ Jacobson v. Massachusetts, 197 U.S. 11 (1905).

safety of the public.”⁹⁹ Moreover, the court had the following to say about induced rights in the face of police power:

The liberty secured by the Constitution of the United States does not import an absolute right in each person to be at all times, and in all circumstances, wholly freed from restraint, nor is it an element in such liberty that one person, or a minority of persons residing in any community and enjoying the benefits of its local government, should have power to dominate the majority when supported in their action by the authority of the State.¹⁰⁰

This decision is the single most important court case as it relates to public health policy and vaccination in the United States, for it upheld the constitutional legality of compulsory immunization mandates and placed limits on individual liberties during health crises.

This ruling firmly places the anti-vaccination movement in the larger story of 19th-century negotiations of police power and resistance to State intervention in everyday affairs. Both in the courts (*de jure*) and on the ground (*de facto*) those opposed to immunization fought against state forces. Without the publications, legal action, and intense social debates about compulsory vaccinations across the country, the Supreme Court ruling that liberty is not absolute would most likely not have occurred. When thinking of the larger Progressive Era politics, resistance to these laws and the eventual ruling in favor of police power is not surprising. As previously discussed, the decision to uphold the state’s right to intervene in previously private affairs is a hallmark of this era. Labor, healthcare, and education are all areas that experienced changes in part due to legal action of citizens who were considering their civil liberties. In this way, the anti-vaccination movement of the late 19th and early 20th centuries is not an isolated event on the fringes of history. Rather, it is part of a larger trend of the age-old American fight to

⁹⁹ Jacobson v. Massachusetts, 197 U.S. 11 (1905).

¹⁰⁰ Jacobson v. Massachusetts, 197 U.S. 11 (1905).

define the boundaries between individual rights and a state's police power as well as a pushback against the extension of State power in everyday affairs.

Conclusion

Despite fierce efforts from anti-vaccination proponents, immunization efforts for smallpox increased tenfold in the 20th century. Due to the success of this campaign, smallpox remains the only disease that has ever been eradicated worldwide.¹⁰¹ The fact that there have been no new cases of *variola* since 1977 is a miraculous feat because this disease killed an inestimable amount of people. From inoculation's origins in the 15th century to Edward Jenner's vaccine in the 18th century, people across the world have searched for ways to live in a world free from smallpox as we have the privilege of doing in the 21st century.

However, the road to eradication has not been without its challenges. Fear followed disease prevention methods throughout history, but not without reason. Smallpox was a highly dangerous infectious disease. When new practices such as Jenner's vaccine came along, there was understandably some hesitancy associated with participating in this prevention method. Concerning the late 19th and early 20th century, I argue this hesitancy mostly stemmed from fear of immunization having adverse effects on one's health or more philosophical principles regarding liberty. These mandatory vaccination laws forced Americans to consider the bounds of the civil liberties promised to them in the Constitution and the power that states have to act in service of the greater good. These questions were often debated through the anti-vaccination movement, thus situating anti-immunization efforts in larger 19th-century debates over the limits of police power.

¹⁰¹ "About Smallpox," Center for Disease Control and Prevention, October 24, 2024, <https://www.cdc.gov/smallpox/about/index.html>.

Despite the ruling in *Jacobson v Massachusetts* (1905) that upheld the state's power to enforce compulsory vaccinations, anti-vaccination efforts never went away. Rather as Americans grew more accustomed to an interventionist state, embraced scientific advancements like germ theory, and saw improvements in vaccine safety, the number of smallpox anti-vaxxers steadily declined throughout the mid-1900s.¹⁰² However, their efforts were largely redirected at newly developed vaccines. Immunizations for polio, diphtheria, hepatitis, chickenpox, meningococcal, HPV, and influenza all had – and still have – resistance. In 2025, anti-vaxxers are particularly interested in protesting the COVID-19 and measles vaccines. With widespread questions and fears about vaccinations being an integral part of modern society, it becomes increasingly important to understand how past periods of hesitancy affect public health today. For example, further studies on this topic could consider the role of religion in the anti-vaccination movement and its connections to Christian fundamentalism as a reactionary force to modernity. Utah had fierce anti-vaccination battles in the late 19th and early 20th centuries that were affected by its LDS population. Considering current trends in using religious beliefs to opt out of vaccination, such a study could be beneficial to understanding the dichotomy between fundamentalist religious practices and modern medicine.

Bridging the gap between the messy, diverse reasons people choose not to vaccinate, and scientific evidence of immunization's effectiveness has never and will not currently be easy. Regardless, Americans must remain steadfast in their trust in medical knowledge and extend empathy to those who oppose vaccination. Open honest communication about the effectiveness of vaccinations and understanding why those in this country may be hesitant about immunization

¹⁰² US Department of Health, Education, and Welfare, *Vital statistics -- special report, national summaries: reported incidence of selected notifiable diseases, United States, each division and state, 1920-50* (Washington, DC: United States Printing Office, 1954).

is the first step in fixing the quickly diminishing herd immunity. This, coupled with historical understandings of anti-vaccination, will aid in the goal of making the United States a safe and healthy nation.

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