

PREVENTION OF PESTILENCE:
THE INCREASED EFFECTIVENESS OF CHOLERA PROPHYLAXIS IN
GREAT BRITAIN AND THE UNITED STATES, 1848-1866

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Thesis
Submitted to the Faculty of the
Department of History of Vanderbilt University
In partial fulfillment of the requirements
for Honors in History

April 2009

On the basis of this thesis
defended by the candidate on
April 27, 2009 we, the
undersigned, recommend that the
candidate be awarded
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TABLE OF CONTENTS

Introduction.....	PAGE 1
Chapter One: 1848: The Return of Cholera.....	PAGE 12
Britain.....	PAGE 12
United States.....	PAGE 31
Chapter Two: 1866: Increasing Effectiveness.....	PAGE 53
Britain.....	PAGE 54
United States.....	PAGE 69
Conclusion: What Makes Public Health Interventions Successful?	PAGE 89

Introduction

“If ever a disease was invented to take the conceit out of man, that disease was cholera.”¹

-Dr. R.L. Rea, Chicago, 1867

Imagine living in a crowded boardinghouse in London or New York in 1848, surrounded by people in cramped conditions, with little notion of modern conveniences. It is summer, and there is barely room to breathe the muggy air. Like so many others before you, you awake to find your mother, father, or sibling wracked by violent spasms and seized by uncontrollable vomiting and diarrhea. Within hours, others have taken ill; there is nothing you can do but try to keep your loved ones comfortable as you wait for the inevitable— your own awareness of succumbing to cholera.

In Britain and the United States, the cholera epidemic of 1848-9 struck with terrible force, with little progress made by health authorities. One American physician declared, “The causes of Cholera have been the occasion of untold embarrassment to the profession, the world over... And still we are in the dark, and for aught I can see to the contrary, we are likely to remain as we have been.”² There was little reason to believe that health authorities in either country would be successful in preventing or containing the disease. By 1866, however, physicians and authorities began to proclaim the effectiveness of public health measures, and in a few decades, cholera was no longer a problem in the developed world. The scientific

¹ R. L. Rea, “Contagion of Cholera,” *Chicago Medical Journal* 24 (1867): 355, in Google Books.

² Thomas Duche Mitchell, *Lecture on epidemic cholera: delivered in the hall of the Philadelphia College of Medicine, in May, 1849, at the request of the medical class* (Philadelphia: Craig & Young, 1849), 4, in Cholera Online, <http://www.nlm.nih.gov/exhibition/cholera/>.

developments that occurred during this time cannot alone explain this success: something else had to be responsible for this change.

This thesis examines what occurred between 1848 and 1866 in Britain and America to improve cholera prophylaxis, highlighting that essentially the same factors contributed to both countries' success by 1866. Greater consensus, both in the medical profession and between physicians and public health authorities, the use of effective sanitary infrastructure, and the implementation of new techniques such as disinfection led to cholera prophylaxis that was apparently significantly more effective between 1848 and 1866 in Britain and the United States. Despite differing circumstances between the countries, the basic lesson was the same: conflicts with other physicians, lay authorities, and non-allopathic physicians hampered public health efforts in 1848, while a more cooperative profession produced better results. Along with new scientific theories that prompted more effective techniques and the development of infrastructure necessary for implementation, better relationships between medicine and public health allowed efforts at cholera prophylaxis to function more effectively.

Throughout this thesis, I use the terms "cooperative," "consensus," and "united" to describe the state of the medical fields in Britain and American in 1866. By this, I do not mean to claim that physicians were by any means entirely united, as this was certainly not the case. What I mean to suggest is that they focused their energy less on fighting (with each other, alternative practitioners, and sanitary authorities) and more on supporting official public health efforts. Health authorities also included physicians rather than antagonizing them, creating a better relationship between medicine and public health. This greater cooperation, in addition to infrastructure and the use of more effective sanitary techniques, made cholera prophylaxis appreciably more successful between 1849 and 1866.

In Britain in 1848, the head of the General Board of Health, Edwin Chadwick, angered the medical community with his autocratic administration. Relying on the miasmatic theory, he attempted to prevent cholera through sanitationism (essentially nuisance removal and systems of sewage), but lacked the necessary support. Although public health infrastructure existed, power struggles within the medical community and between physicians and Chadwick limited the effectiveness of the Board of Health's prophylactic measures. Between 1854 and 1866, the ideas of John Snow and Max Joseph von Pettenkofer shifted the field from miasmatism to contagionism, ushering in an era of more effective techniques: neoquarantinism and modified sanitationism, or disinfection. In 1866, John Simon, the new Medical Officer of Health, had a much better relationship with physicians, who supported his administration. As a result, London suffered a significant decline in mortality compared with previous epidemics.

The United States in 1848 lacked both an overarching body and national health policy. Because of this, physicians and health authorities jockeyed for influence, leading to a diversity of (often strongly held) opinions that limited cooperation. In addition, America lacked the necessary infrastructure to undertake reforms in time to slow the epidemic. The 1848 epidemic was thus a disorganized mess in which little was accomplished. By 1866, as in London, several American cities began to embrace contagionism and utilize disinfection, developing the infrastructure to implement it effectively. Less dissent in the medical community and between physicians and public health proved to be a recipe for prophylactic success. In cities where these factors did not exist, cholera proved as deadly as it had in 1849, illustrating the positive impact of cooperation, infrastructure, and better technology.

While it is difficult to know exactly how successful such interventions were, a combination of statistics from the period, primary accounts, and secondary sources establishes a

certain degree of validity. Authorities were just starting to use statistics as a tool in public health during the nineteenth century, so the exact numbers cannot be taken as absolutely true.

However, such measures, combined with contemporary perceptions of prophylactic measures, offer a good sense of events. In addition, modern historians also offer their analyses of effectiveness. That these three sources almost always agree suggests that they have at least approximated what occurred. In this thesis, I have used the term “apparent success” because it encompasses the necessary amount of ambiguity while maintaining that the combination of primary and secondary sources is probably very close to, if not entirely, accurate.

American Historiography

No comparative history of the American and British cholera epidemics exists, but historians have analyzed aspects of both epidemics independently. As such, the historiography of American public health remains essentially separate from that of England. Charles Rosenberg and John Duffy represent the primary voices in the sparsely-populated field. Rosenberg’s 1962 book *The Cholera Years: The United States in 1832, 1849 and 1866* remains the standard book about the history of cholera in America. He argues that cholera changed from a religious problem in 1832 to a social problem in 1866, as public virtue became linked with public health. In the process, reformers became concerned with physical bodies as well as immortal souls. Physicians were generally ineffective, and the boards of health in various cities disappeared when the worst of the threat went away. By 1866, reformers realized that only sanitary reform, cleaning the streets and tenements, could prevent cholera.³ Rosenberg ends on a positive note, arguing that health reformers used the tools of civilization to deal with problems that urbanization had created. While it provides a factually correct and encompassing narrative of the

³ Rosenberg, Charles, *The Cholera Years: The United States in 1832, 1849, and 1866* (Chicago: University of Chicago Press, 1962), 130.

American epidemics, Rosenberg's work is somewhat deterministic, as he sees public health as inevitably increasing in scope and correctness because of technology.

Later American writers bring a more critical eye to the American story of cholera. John Duffy expands upon Rosenberg's ideas in his 1990 book *The Sanitarians: A History of American Public Health*. In this book, he argues that the history of American public health was characterized by crisis periods and times of general apathy. Americans tended to respond to periodic epidemics but ignore sanitary and environmental concerns until they became pressing, and sanitary reformers "went largely unheard" in periods without tangible threats.⁴ Duffy argues that public health measures established during the worst of the epidemics were ultimately fleeting, which he attributes to Jacksonian anti-government feeling, among other factors. He sees the Civil War as the major impetus for sanitary reform, arguing that urbanization made sanitary reform inevitable. This argument differs from Rosenberg's in that he does not view cholera as the main cause of sanitationism, but it is also deterministic. My analysis differs from Rosenberg and Duffy's in that it argues that effective prophylaxis was not inevitable. It resulted from a specific set of circumstances: relative cohesion in the medical field, etiological theories that produced effective results, and the infrastructure to implement them. In addition, unlike Duffy, I assert that American physicians were not apathetic. Rather, especially in 1848, they lacked the cooperation and infrastructure necessary to achieve their goals of sanitary reform.

British Scholarship

Early scholarship on British cholera tends to be less critical of its subject matter, offering positive views of the public health movement without attempting to problematize it. While much of this work has been replaced by more modern approaches, one influential article has shaped the

⁴ John Duffy, *The Sanitarians: A History of American Public Health* (Chicago: University of Urbana Press, 1990), 50.

debate for over fifty years. Edwin Ackerknecht's 1948 article "Anti-contagionism between 1821 and 1867" looks at the differences between contagionists and anti-contagionists in Europe. One of his most important arguments was that political systems affected public health: autocratic states were more likely to have intrusive public health efforts, while liberal democracies did not impose on their citizens to such a degree. Ackerknecht's thesis has remained important, as historians (until recently) trusted his intuitive conclusions about the role of political bent in determining public health.

Historians throughout the 1970s and 1980s relied on Ackerknecht's ideas while they produced more detailed and analytical studies of the epidemics. Such works show concern for the social, political, and economic effects of cholera. While essentially narrative in structure, they offer increasingly more detailed analyses of particular epidemics or themes. R.J. Morris' 1976 book *Cholera 1832: The Social Response to an Epidemic* is still one of the most widely cited books in the field, probably more for its coherent storytelling and insightful analysis than a particularly strong argument. Morris argues that cholera reveals much about the values, class tensions, and priorities of British society because it caused considerable panic. In his discussion of later epidemics, he paints Snow and Chadwick as heroes, an analysis widely challenged by later historians.⁵ Later books, including Michael Durey's 1979 work *The Return of the Plague: British Society in Cholera 1831-2*, offer widely cited analyses of the social dimensions of cholera. However, neither Morris nor Durey viewed cholera as having a great impact on public health, a view challenged by at least one recent historian.⁶

Beginning in the late 1970s, historians began to examine Ackerknecht's arguments, the underpinning of the cholera debate. Margaret Pelling's 1978 *Cholera, Fever and English*

⁵ R.J. Morris, *Cholera 1832: The Social Response to an Epidemic* (New York: Holmes and Meier, 1976), 18.

⁶ Pamela Gilbert, *Cholera and Nation: Doctoring the Social Body in Victorian England* (Albany: SUNY Press, 2008), 8.

Medicine, 1825-1865 serves as an important book because she disagrees with Ackerknecht's thesis, concluding instead that political systems do not actually correlate with prophylactic interventions. Concerned with the theories behind cholera etiology, her focus is not on prophylaxis, but she introduces the idea that British physicians hated Chadwick for usurping their medical authority, an important concept in my thesis. Pelling views cholera as "a distraction rather than an impetus to reform," an assertion which I argue against, although it is not a major theme.⁷ In the same vein, Peter Baldwin's 1999 book *Contagion and the State in Europe, 1830-1930* compares public health responses among European nations, addressing whether political ideology in Europe determined the prophylactic policies implemented in the nineteenth century. Baldwin engages with Ackerknecht's article throughout the work, ultimately concluding that his argument is intuitive but incorrect. Like Pelling's ideas, Baldwin's study is intriguing because it argues that factors other than political ideology determine a country's prophylactic response to epidemics. He cites, for instance, "geoepidemiological location," or the "topography required to make certain preventive strategies work," and administrative infrastructure, which could explain Americans' reliance on quarantines and lack of success in 1848.⁸ This is influential in my thesis because it provides a basis for my argument that the American story should not be dismissed as mere Jacksonian anti-government feeling.

In addition to examining Ackerknecht's seminal work, recent scholarship has also used the ideas of philosopher Michel Foucault and social theorists such as Mary Poovey. Christopher Hamlin's *Public Health and Social Justice in the Age of Chadwick Britain, 1800-1854*, published in 1998, is one of the most important books in the current literature of cholera. In it, Hamlin problematizes simplistic interpretations of the public health movement. He asserts that while

⁷ Margaret Pelling, *Cholera, Fever and English Medicine, 1825-1865* (Oxford: Oxford University Press, 1978), 6.

⁸ Peter Baldwin, *Contagion and the State in Europe, 1830-1930* (Cambridge: Cambridge University Press, 1999), 550

Edwin Chadwick's sanitary reforms are perceived today as examples of social justice, they actually were a retreat from earlier and broader goals of social reform into politically neutral topics. While the ideas of Foucault and the revisionists have played a major role in the debate in recent years, my thesis does not address power relations to any great degree. Hamlin's arguments about the controlling nature of public health interventions are persuasive but do not relate very much with medical ideas about prophylaxis.

More relevant to this thesis is Hamlin's argument against the determinism he perceives in the field. To Hamlin, progress is less an "ideal toward which all progressive public health is ever tending," and more a history of "the acquisition of political rights" by different groups.⁹ He argues that it is imperative to consider that the public health that developed was not inevitable, as Chadwick and other leaders constantly made choices. If the "early Victorians invented one public health among many," and sanitationism as it occurred was not Chadwick's only option, as Hamlin asserts, the struggles over cholera prophylaxis become more interesting.¹⁰ Different reformers, etiological theories, relationships in the medical community, or balances of power could have caused this story to develop in a different way. Applying Hamlin's ideas, my focus is not merely on what actually proved effective and who "won" eventually, but what ideas gained credence and how this affected the development of public health.

My Niche in the Research

While no comparative study of the cholera epidemics in Britain and America exists, a general picture of the two fields separately exists in the secondary literature. Scholars suggest that while the British established a bureaucracy that was able to promote sanitary reform aggressively, the Americans were too apathetic or motivated by anti-government feeling to

⁹ Christopher Hamlin, *Public Health and Social Justice in the Age of Chadwick Britain, 1800-1854* (Cambridge: Cambridge University Press, 1998), 2.

¹⁰ *Ibid.*, 12, 339.

undertake the same goals.¹¹ This is a misconception, and one of the most significant differences in my work from the scholarship is the rebuttal of the argument that American physicians were apathetic. Both Margaret Pelling and Peter Baldwin argue that differences in national political systems do not account for differences in cholera prophylaxis, which Ackerknecht claimed: political systems may correlate in some instances with the intrusiveness of public health, but are not the cause of them. Baldwin's argument that "such assumptions of a correspondence between politics and prophylaxis do not, however, hold with much consistency" suggests that the American public health system should be examined critically, instead of assuming that Jacksonian anti-government politics necessarily directed health policy.¹² An analysis of American medical writers indicates that such an assumption is indeed flawed. My sources roundly disagree with Duffy's portrayal of Americans as apathetic towards health reform, as many favored government interventions. Although no national reforms were undertaken, many physicians and public health authorities exhibited a definite concern about cholera and a desire to implement intrusive measures to protect the public.

Another of the primary problems in the American field is determinism. Rosenberg and Duffy both portray sanitary reform as inevitable, Rosenberg because of increasing knowledge and Duffy because of urbanization. They do not consider that American public health could have evolved in a different way, at a different time, or not at all. As Christopher Hamlin argues, such an understanding "fails to acknowledge that conditions do not *explain* changes in social thought or its institutions" and is much less interesting than an analysis that considers what might have been.¹³ This thesis attempts to apply such a sophisticated perspective to the American field, addressing the perspectives of the entire medical field, not just those whom later experience

¹¹ Duffy, *Sanitarians*, 2, 138-9.

¹² Baldwin, *Contagion*, 529.

¹³ Hamlin, *Public Health*, 336.

would prove correct. Rather than asserting that sanitationism was inevitable, it examines how particular ideas of cholera prophylaxis became popular.

While not a major theme in the thesis, the significance of the cholera threat in influencing public health measures is a noticeable difference from the consensus in the secondary literature. Many scholars downplay the effects of cholera, arguing that reform resulted from other factors, such as the Civil War and urbanization in the United States.¹⁴ However, contemporary health authorities viewed cholera as a stimulus for reform and the development of public health infrastructure. It is legitimate to consider cholera at least part of the cause of sanitary reform because contemporary medical authorities believed that it was, even though some historians suggest that causation here cannot be proven.

In addition to engaging with other scholarship, this study addresses areas previously neglected in the field. While many historians have considered the scientific and theoretical developments necessary to prevent cholera, the necessary conditions within the medical community have not been explored. My argument about the importance of consensus among health authorities is unique and helps to explain the significant difference in effectiveness between 1848 and 1866. Partly because of the comparative study in which it originated, my conclusion about consensus has broader applications about the nature of successful public health interventions that go far beyond cholera. By analyzing what characterized an “effective” response, this study helps to shed light on ways in which public health measures, historically and currently, can possess the requisite tools for success.

This study is organized into two chapters: 1848 and 1866. When discussing Britain, my focus is almost exclusively on London. For an appropriate comparison, I have chosen to focus primarily on urban Northern cities in the United States, such as New York, Philadelphia, and

¹⁴ Pelling, Durey, Morris, and Duffy all make this claim. It is challenged in Gilbert, *Cholera and Nation*, 8.

Chicago, with a few exceptions. In order to narrow the focus, my sources include only texts from the medical or public health community. These include medical journals, Board of Health or Sanitary Committee reports, and pamphlets and books from physicians and health authorities. Most British sources are *Lancet* articles; official publications by the administrations of Chadwick and his successor, John Simon; and pamphlets from various physicians. In the United States, medical journals in New York, Chicago, and Philadelphia, along with medical pamphlets, are the greatest source of information. By 1866, with American health boards gaining strength, official publications offer a detailed perspective from the health authorities themselves. These sources allow insight into the official and medical views of cholera prophylaxis.

While circumstances obviously differed in Britain and the United States— socially, politically, economically, and geographically— the end goal was the same. Both needed to establish a system of cholera prophylaxis that authorities could consider effective in reducing the mortality of the terrifying disease. Little headway occurred in 1848 in either country, for various reasons: primarily, antagonistic relationships in Britain and a lack of organization in the United States. This lack of cooperation limited the ability of authorities to implement functioning methods of prophylaxis. Britain and the United States thus suffered from variations of the same problem; as a result, the path to success was the same. Physicians and public health authorities needed to cooperate, expand infrastructure, and institute new techniques for their prophylactic methods to be effective in 1866.

Chapter One

1848: The Return of Cholera

The cholera epidemic of 1832 terrified and embarrassed the medical communities in Britain and America, as it became clear that previous strategies for dealing with epidemic diseases were not adequate to counter the new threat. Between 1832 and 1848, the two nations diverged, with the development of public health infrastructure and authority under Edwin Chadwick and the General Board of Health in Britain but no similar developments on a large scale in the United States. The second cholera epidemic serves as a valuable snapshot because Britain and the United States chose to undertake very different strategies in 1848, neither of which was apparently very effective. Successful cholera prophylaxis requires a consensus in the medical and public health community, theories and techniques that possess explanatory power and work with relative effectiveness, and the infrastructure to implement these ideas. This chapter examines the reasons behind the lack of success in cholera prophylaxis in Britain and the United States during the epidemic of 1848-9: the structure or lack of consensus in the profession, and ineffective or unpopular theories of etiology and technology.

Britain

While the British improved significantly in the implementation of public health infrastructure between 1832 and 1849, several problems arose under Edwin Chadwick's dictatorial administration that made these steps less effective. Health authorities had given up on quarantines by the end of 1833, viewing them as economically dangerous and ineffective. The paradigm that replaced quarantinism was sanitationism, which attributed cholera to miasmas, or poisonous gases arising from waste. Edwin Chadwick, a Benthamite reformer and head of the

General Board of Health, established a series of broad, sweeping goals to eliminate cholera by cleaning the city and eliminating miasmas. However, sanitationism did not work as well as Chadwick expected in the short term. In addition, there was a lack of consensus in the medical field over etiology, particularly contagionism and miasmaticism. Other physicians viewed it as a disease of the poor, filthy, and intemperate, a view that did not encourage physicians to support broad reforms. Despite this diversity of opinions, Chadwick exclusively promoted his goals and refused to acknowledge the validity of other ideas. As a result, many physicians resented his authority over the discipline of public health. Ultimately, despite the implementation of sanitary infrastructure that would be successful in 1866, physicians criticized Chadwick for his failure to protect London, and the Board of Health itself admitted that it had not accomplished its goals.

Prior Experience with Prophylaxis: Lack of Knowledge in 1832

Prior to 1832, contagionism was the dominant theory in Britain and the official policy of authorities, so all prophylactic methods, which had advanced little since the plague, worked on the assumption that cholera was contagious. The Central Board of Health, established in 1831, along with the Royal College of Physicians and the *Lancet*, strongly supported quarantines.¹⁵ Quarantine made sense to people because no defenses against cholera existed inside the country, as the only state health authorities besides the quarantining body were the Commission in Lunacy and the Vaccination Board.¹⁶ Not all historians see the original Board as justified in its support of contagionism and quarantine, though. Medical members of the Board were primarily members of the Royal College of Physicians, often characterized as more concerned with

¹⁵ Michael Durey, *The Return of the Plague: British Society and the Cholera, 1831-2* (Dublin: Gill and Macmillan, 1979), 13; Pelling, *English Medicine*, 27; Baldwin, *Contagion*, 106.

¹⁶ Durey, *Plague*, 9.

prestige than medicine itself. In addition, such measures relied not on new information but on outdated plague regulations, not necessarily relevant to cholera.¹⁷

Regardless of the wisdom of the Board's choices at the beginning of the epidemic, experience with the disease in the early years quickly caused the contagionist argument to lose ground.¹⁸ In June of 1831, the Board established a system of strict quarantines, controlled by local boards, which oversaw the forced removal of cholera patients to lazarettos, military guards and isolation for contacts of the sick, drastic measures to purify infected homes, and special burial grounds near sites of infection. However, harsh quarantines had caused riots in Eastern Europe, persuading the Privy Council that such intervention was counterproductive. The Council, reacting to failures of such stringent measures in Europe and charges of corruption within the Board, replaced the Board in November with men with more medical experience, who were much less wedded to the idea of quarantine. By the time cholera arrived, Britain's authorities had pulled back from strict quarantinism, becoming instead sanitationist and only mildly quarantinist.¹⁹ After the 1832 epidemic, the Central Board of Health issued a "mildly self-congratulatory" report that did not indicate a need for a permanent health board.²⁰ The 1832 epidemic had convinced British leaders that quarantines were ineffective, but lasting reform of the public health system was not yet a priority.

Technology in 1849: Chadwick's Sanitationism

Edwin Chadwick led the General Board of Health from its inception in 1848, giving him significant authority to legislate sanitary improvements.²¹ A barrister, attorney, and bureaucrat,

¹⁷ Durey, *Plague*, 12; Baldwin, *Contagion*, 101.

¹⁸ Baldwin, *Contagion*, 107

¹⁹ Durey, *Plague*, 24-25; Baldwin, *Contagion*, 116-117; Morris points out that the board had also offended the *Lancet*, which objected to the government's reliance on prestigious physicians who had never dealt with cholera, rather than practitioners with more practical experience.

²⁰ Durey, *Plague*, 206-7.

²¹ Baldwin, *Contagionism*, 138.

Chadwick might seem an unlikely candidate for the face of British public health in 1848. Once Jeremy Bentham's secretary, he gained much of his experience designing the Poor Laws (1832-4) and serving as the secretary of the commission to implement it until 1847. He "sought authority through dogma and detail" and had a "passion for micromanagement and complex organizational plans," making few friends but many enemies in the process.²² After the Poor Laws, Chadwick became interested in sanitary reform and helped to define British public health based on his own ideas. He focused on water, drains, and waste, to the exclusion of other factors, such as poverty and improper nourishment, which reformers had proposed as major causes behind disease.²³ Framing public health in terms of water and waste, Chadwick advocated sanitationism as the primary prophylactic strategy for cholera.

Partly because it was official policy during Edwin Chadwick's tenure at the General Board of Health, sanitationism characterized the 1848-1849 epidemic in Britain. Disease, in this paradigm, could be prevented if filth and putrefied matter were removed.²⁴ Sanitationism was thus an attempt to prevent disease on a large scale by sanitizing the urban environment. More than any of the other European countries, the British health authorities moved away from quarantine almost entirely in favor of sanitationism. The Board of Health argued that internal quarantines and isolation, which had been the dominant approach when people assumed cholera was contagious, were abandoned because they had been proven inefficient during the previous epidemic.²⁵ Instead, Chadwick oversaw an ambitious series of legislation for sanitary improvements and public works. Sanitary inspectors visited homes to watch for the premonitory symptoms of cholera, remove infected people, and report filth, calling on some 48,000

²² Hamlin, *Public Health*, 87-88.

²³ Hamlin, *Public Health*, 233.

²⁴ Baldwin, *Contagion*, 126-8.

²⁵ General Board of Health, Great Britain, *Government Regulations for the Prevention of Cholera* (Edinburgh: A. Murray, 1848), 4, in Cholera Online, <http://www.nlm.nih.gov/exhibition/cholera/>.

Londoners in 1848. The *Nuisance Removal Acts* of 1846 and 1848 gave Guardians of the Poor the authority to clean buildings and remove nuisances from private property, and the Board of Health's 1848 regulations encouraged the Medical Officer to have dirty streets cleaned.²⁶

The Board of Health argued that cholera could be prevented by removing filth, particularly by improving drainage. In an appendix to a Board Report, Dr. John Sutherland, a sanitarian from Liverpool, argued that the "most severe outbreaks of cholera have been those connected with very obvious local defects," with cholera generally avoiding cleaner areas and striking dirty ones. Sanitary reform aimed to fix poor ventilation, crowding, and filth, as the Board believed that cholera followed the usual pattern of fevers and "[located] itself in the same filthy closes, occupying the same ill-ventilated, over-crowded tenements."²⁷ The suggestion here was that cholera could be predicted by sanitary condition. If health authorities could predict cholera, sanitationists argued, they could prevent it. The Board of Health claimed to base their policies on both the 1832 epidemic and 1848 in the rest of Europe, implying in a *Lancet* article that their ideas about cholera (miasmatism) were the most scientifically up-to-date.²⁸

Referencing the past served to present the Board as the legitimate holder of public health authority in Britain.

Authorities drafted ambitious public works projects in the hopes that such means could protect against or at least mitigate the spread of cholera. Because of Chadwick's preoccupation with water, one of the most important factors in public health infrastructure development involved drainage. Dr. Sutherland declared in his Report that, "dampness and defective drainage can only be remedied by extensive public works... in future we must proceed to deal vigorously

²⁶ Baldwin, *Contagionism*, 137.

²⁷ Dr. John Sutherland, *Report of the General Board of Health on the epidemic cholera of 1848 & 1849* (London: W. Clowes and Sons, 1850), 147, in Cholera Online, <http://www.nlm.nih.gov/exhibition/cholera/>; Sutherland, *Report*, 1. Sutherland is briefly mentioned in Hamlin, *Public Health*, 325.

²⁸ Henry Austin, Board of Health Secretary, "Public Health- Cholera," *Lancet* 52, no. 1312 (1848): 462.

with these standing causes of disease and pauperism.” In the Board’s eyes, public works struck at the heart of the epidemic by eliminating localizing factors, and were thus a priority.²⁹ Such efforts aimed to fix the underlying causes of cholera, rather than prevent it from entering Britain.

Sanitationism Underwhelms

Chadwick’s administration ran into several problems that ultimately hampered the effectiveness of its policies. The results left much to be desired, as cholera’s spread continued almost unabated in 1848-9. In England in 1849, 72,180 deaths from cholera (and diarrhea) occurred, according to the report of the Registrar General, William Farr, published in 1852.³⁰ This represented a significant increase in mortality, according to the Royal Statistical Society, which declared that cholera “raged in many places with great violence” from 1848-1849.³¹ Even the Board officials acknowledged their lack of success, but usually blamed it on the filthy poor or ineffective local authorities. The Metropolitan Sanitary Commission remarked that “nothing but daily inspection can secure the due attention of the poor and ignorant,” whose “general carelessness and indifference to all advice respecting diet and medical treatment is the chief cause of the greater prevalence of this disease” among the poor.³² Authorities obviously doubted the ability of the poor to comply with these new regulations, blaming them for cholera’s spread.

The Board also cited local authorities for failing to live up to Chadwick’s goals. While some half-measures taken in certain areas were seen as beneficial, such places could not measure up to areas in which “a more enlightened and intelligent management” prevailed.³³ This indicates the Board’s frustration with the authority it had delegated, as Chadwick was clearly

²⁹ Sutherland, *Report*, 147, 43-4.

³⁰ “The Registrar General’s Report on the Mortality of Cholera in England, 1848-9,” *The British and Foreign Medico-Chirurgical Review* 10 (1852): 39, in Google Books.

³¹ “The Marriages, Births, and Deaths, Registered in the Divisions, Counties, and Districts of England,” *Journal of the Statistical Society of London* 13 (1850): 185.

³² Crawford/Metropolitan Sanitary Commission, *Observations*, 9. This statement refers to the new sanitary laws passed in 1848.

³³ *Ibid.*

bothered that he could not control the implementation of his policies. Another Board publication declared that during the implementation of the *Nuisances Removal and Diseases Prevention Act*, the parochial bodies and authorities assigned to the task were either unprepared for, “entirely ignorant of,” or reluctant to carry out their duties.³⁴ While this statement obviously deals with the execution of the law, it suggests that the legislation was not as comprehensive as Chadwick wished, particularly with respect to financial responsibility. Notably, this was not the first time that Chadwick had placed the blame for the failure of his policies on local authorities, as he did essentially the same thing to sewer commissioners in the 1830s when they could not implement new projects to his satisfaction.³⁵

Ultimately, the sanitationism that prevailed in 1848-9 was not as successful as Chadwick had hoped. Sanitationists began to seek more temporary goals, as the Board recognized that it had failed and comprehensive sanitary reform was a long-term prospect.³⁶ Dr. Sutherland admitted that complete freedom from cholera would only happen when permanent solutions had been made, although he argued that enforcing cleaning and nuisance removal would help check its spread.³⁷ The broad reforms needed to eradicate unhealthy living conditions would require much more thorough and expensive means than reformers could muster.

Etiology: Morality & Filth

One reason for Chadwick’s failure was a lack of consensus in the medical and public health fields over etiology. During this period, physicians were not unified and could not come to a consensus about the proper explanation for cholera.³⁸ Conflicting ideas about contagionism,

³⁴ General Board of Health, *Report by the General Board of Health on the Measures Adopted for the Execution of the Nuisances Removal and Diseases Prevention Act, and the Public Health Act, Up to July 1849* (London: W. Clowes & sons, 1849), 22, in Google Books.

³⁵ Hamlin, *Public Health*, 242.

³⁶ Baldwin, *Contagionism*, 136.

³⁷ Sutherland, *Report*, 42.

³⁸ Hamlin, *Public Health*, 52.

miasmatism, and other related theories kept physicians from reaching agreement about cholera's spread. In addition, while many physicians embraced environmental theories of disease, such voices battled with critical or moralistic physicians who blamed victims for their disease. Obviously, physicians who blamed cholera victims were not likely to advocate for far-reaching reforms to protect them. This lack of certainty in the field probably hampered efforts at cohesion because physicians were not committed to one etiological theory. Besides dissent within the medical field, theories of etiology led to conflict with Edwin Chadwick, as he ignored or criticized theories other than miasmatism. Chadwick's refusal to consider alternate viewpoints spurred anger about lay intrusion into medicine, as there was significantly more diversity in the field than he was willing to acknowledge. Thus, it is worth examining theories of etiology in 1848-9 for how they illustrated the diversity of opinions and lack of cohesion in the medical profession.

One major theme in the British debate on etiology was one of class. In this argument, the impoverished, intemperate, and filthy (usually lumped together in such a way) were more likely to be stricken by cholera. In some ways, this idea fit with sanitationism, as people could argue that the intemperate and poor were more likely to reside in filth. Many medical texts asserted that poor, particularly intemperate, cholera victims deserved their fate. One pamphlet, written by a member of the Royal College of Surgeons, declared that "the ill-fed, uncleanly, and consequently unhealthy part of the population, and especially those persons who were addicted to drinking spirits, and indulgence in irregular habits, have been the greatest sufferers from the disease."³⁹ Thomas Allen, a fellow member of the Royal College of Surgeons, remarked that the "drunken and dissolute" were most likely to be struck by cholera, in addition to the dirty, as "the

³⁹ *Five Minutes Common Sense about the Asiatic Cholera; Or, Short and Plain Rules for the Prevention, Management, and Treatment of the Early Symptoms of that Disease, Intended for the Unprofessional Reader* (London: Reeve, Benham & Reeve, 1848), 9, in Cholera Online: <http://www.nlm.nih.gov/exhibition/cholera/>.

want of [personal cleanliness] is a moral evil, as well as bodily risk.”⁴⁰ This statement clearly indicates that the poor suffered because of their own actions— either their moral indiscretions or failure to remove themselves from filth. It is important to note that the source of these quotations was the elitist Royal College of Surgeons, not likely the people who would have the most contact with impoverished cholera victims. Regardless of their actual knowledge of the matter, though, many elite physicians repeated the moral judgments that had flourished in 1832. That the intemperate were victims of cholera suggested that the solution to such cases was moral, not medical, and helped to place blame for infection on the victims, rather than the health authorities. If people were ultimately responsible for protecting themselves from cholera, health authorities had less motivation to undertake large-scale projects.

Such judgments were not reserved for the elite, as similar ideas about who contracted cholera abounded in official texts and publications of regular physicians, who argued that drunkenness, filthy living, and irresponsibility played a role in the disease’s etiology. Many physicians suggested the idea of virtue as the best protection against cholera, advocating cleanliness and temperance.⁴¹ Citing regulations from the Edinburgh Board of Health, the *Lancet* declared in 1848 that people should abstain from alcohol because drunkenness often led to an attack of cholera.⁴² In addition, the Edinburgh Board of Health remarked that moderation was essential because “one single act of indiscretion has, in many instances, been followed by a speedy and fatal attack.”⁴³ On the same theme, the Metropolitan Sanitary Commission noted that

⁴⁰ Thomas Allen, *Plain Directions for the Prevention and Treatment of Cholera* (Oxford: J. Vincent, 1848), 15, in Cholera Online: <http://www.nlm.nih.gov/exhibition/cholera/>.

⁴¹ *Common Sense*, 9.

⁴² Edinburgh Board of Health, “Instructions Respecting the Prevention and Treatment of Cholera,” *Lancet* 53, no. 1313, 484.

⁴³ General Board of Health, *Regulations*, 12.

the first victims of cholera were usually gin drinkers, who never recovered.⁴⁴ These publications indicated that intemperance and indiscretion could quickly lead to doom. The themes of intemperance, indulgence, and filth appear frequently in coterminous texts, indicating that cholera was not yet a morally neutral disease.

It would be unfair to characterize the entire medical establishment as preoccupied with morality, as many British physicians offered pragmatic solutions for preventing cholera. For example, some physicians argued that self-interest dictated helping the poor prevent cholera in their own areas before it spread. One of the primary lessons that the British had learned in 1832 was that cholera killed the rich as well the poor. No one was safe when an epidemic struck, no matter who began it. Thus, prophylaxis was important to all classes, not just the poor. *Common Sense*, directed toward a fearful popular audience, suggests that while the poor would bring the disease, the wealthy would fall victim to it once it spread. The author declared in the preface that the purpose of the documents was “of directing the attention of the rich to the condition of the lower classes, among whom if the disease should occur, it is impossible the former should escape.”⁴⁵ This suggests a claustrophobic city environment in which one’s irresponsibility could mean another person’s gruesome death. Thomas Allen, another physician, echoed this when he described sanitary reform as “self-preservation” rather than altruism, which indicates both a paternalistic responsibility towards the poor and a sense that cholera only became a problem when it left the slums.⁴⁶ Both texts indicate an assumption that the wealthy bore some sort of

⁴⁴ Adair Crawford, Metropolitan Sanitary Commission, *Observations on the Asiatic cholera, during a residence in St. Petersburg in 1848, and on its prevention and cure; with an account of the sanitary regulations proposed to be adopted against the spreading of the disease in this country* (London: W. Clowes and Sons, 1848), 16, in Cholera Online: <http://www.nlm.nih.gov/exhibition/cholera/>.

⁴⁵ *Common Sense*, 4.

⁴⁶ Allen, *Plain Directions*, 17.

responsibility to the poor, even if the motives derived more from self-protection than benevolence.

During this period, an increasing number of physicians saw cholera as a physical, rather than a moral, problem, and many even began to see filth as entirely independent of morality. Unlike in 1832, physicians recognized that the poor could be susceptible because of environmental conditions, rather than moral depravity—to some extent. Many pointed out that cholera struck the hardest in ill-ventilated, unclean towns with narrow streets.⁴⁷ Dr. Thomas Allen, declared that, “The close-packed masses suffer most, if not first, from Cholera, and the disease preponderates in low, crowded, damp, and dirty districts, where people breathe their own exhalations, polluted by the effluvia of surrounding filth.”⁴⁸ Such a statement indicts the filthy slums and, subtly, the inhabitants who cannot find the resources or will to leave, but what is important to note is that the focus is on the environment, not the people.

Dr. Allen also made the crucial distinction between what people could do to prevent cholera and what was out of their power, indicating that ideas of responsibility had become complicated. He wrote, “In those dense congregations of human misery and filth, where huddled thousands breathe and spread corruption, sanatory (sic) laws alone can apply the remedy.” The growing awareness of environmental and social causes of cholera served to complicate the issue of blame, but not to exonerate the poor from responsibility. Allen continued to say, “those which the poor are especially exposed to must be remedied partly by themselves, and partly by those who have power to help them.”⁴⁹ Thus, physicians were beginning to see that sanitary failings were not necessarily moral ones, even if their language was not entirely benevolent. Chadwick’s gospel of sanitary reform was influential, but not the only voice in the debate.

⁴⁷ *Common Sense* 9.

⁴⁸ Allen, *Plain Directions*, 14.

⁴⁹ *Ibid.*, 15.

Professional Conflict

Etiology: Contagionism v. Miasmatism

Another argument occurred between contagionists and miasmatists, or anti-contagionists. Anti-contagionism was the favorite theory of Chadwick, who depicted the medical field as united in support of it. In one *Lancet* article, the Board declared that even if crowded environments might spread cholera, this did not affect “the general principle of its non-contagious nature.”⁵⁰ Such a statement directly contradicts the evidence presented (that crowded environments had spread cholera) and portrays the Board as unwilling to consider alternate viewpoints. This is evident when Chadwick alluded to the “well-known and acknowledged truths in sanitary science,” which were not necessarily acknowledged by everyone.⁵¹ Other authorities implied that consensus had been reached in the medical community, and atmospheric spread was the official answer.⁵²

However, this was not the case, and though Chadwick’s influence glossed over other opinions in the field, it could not silence them entirely. Opposing viewpoints were widely published by respectable physicians. Many even alluded to the lack of certainty in the field, which raises the question of whether Chadwick and his administration were even paying attention to the discourse. For instance, one physician wrote that, while he did not see cholera as contagious, knowledgeable people held many different opinions.⁵³ In addition, John Snow declared in 1849 that “in common with a great portion of the medical profession,” he believed that cholera was “propagated by human intercourse.”⁵⁴ Snow argued that cholera was not contagious in the same way as diseases such as the plague. Instead, he thought that poisonous

⁵⁰ Henry Austin, *Public Health*, 462.

⁵¹ Sutherland, *Report*, 3.

⁵² Crawford/ Metropolitan Sanitary Commission, *Observations*, 11.

⁵³ Allen, *Plain Directions*, 6.

⁵⁴ Snow, *Communication*, 5.

“effluvia” of victims spread from sewers to the water supply.⁵⁵ While Snow’s ideas were not as prominent in 1849 as they would be in 1854 or 1866, ideas of contagionism were evident in the debate. One physician declared that while no one knew for sure, cholera was probably a “miasmatic poison.”⁵⁶ Another, reasonably convinced of the theory of contagion, described the theories in four broad categories: contagion; a “poisonous vapor,” or miasma; “animalculae;” and atmospheric changes.⁵⁷ Thus, the Board did not represent the entire population it claimed, as considerable room for differing opinions existed.

Instead, Chadwick essentially ascribed his views to the entire medical profession.⁵⁸ The Board of Health’s publications exhibit unanimity of opinion and unity of purpose that did not accurately reflect the opinions of the medical community. This authority to speak for the profession was possible because Edwin Chadwick and Southwood Smith, the Board’s physician, held a monopoly over the official doctrine. Their ideas represented a “centralization of doctrine” in which very few ideas changed over twenty years. Rather than presenting ideas that had evolved with greater experience, Chadwick and Smith loudly trumpeted ideas from 1832 that were merely a “repetition of earlier polemic.” Thus, their ideas did not actually reflect the most up-to-date knowledge of the time, but their own opinions, formed years earlier.⁵⁹

Chadwick’s animosity toward the medical profession had formed years earlier, as well. Critical of London physicians, he argued that they were “easily duped” because they were

⁵⁵ Snow, *Communication*, 5-11.

⁵⁶ Andrew Buchanan, *Observations on malignant cholera, intended to illustrate the natural course of the disease, the natural processes by which a spontaneous recovery is effected and the mode of treatment best adapted to second the curative efforts of nature* (London: J.J. Griffin & Co., 1848), 23, in Cholera Online: <http://www.nlm.nih.gov/exhibition/cholera/>.

⁵⁷ George Stuart Hawthorne, *The true pathological nature of cholera, and an infallible method of treating it: with an introduction, additions, and emendations : in a series of letters* (London: Simpkin, Marshall, & Co, 1849), 4, in Cholera Online: <http://www.nlm.nih.gov/exhibition/cholera/>.

⁵⁸ Pelling, *English Medicine*, 6-7.

⁵⁹ Pelling, *English Medicine*, 301.

concerned only with the cases they saw personally.⁶⁰ In addition, he was wary of them because many had a broader concept of disease etiology than merely water and waste and could threaten his plans. Thus, he made them secondary to his own medical officers in his discussion of his plans for reform in the 1842 Sanitary Report. His dislike for physicians continued throughout his tenure at the Board of Health, and he deliberately attempted to marginalize them.⁶¹

Ensuing Criticism

Chadwick's dislike of the medical profession was mutual. His dogmatism and assertion of authority over the profession during the 1848-9 epidemic caused resentment among physicians, who argued that Chadwick had no right to speak for them.⁶² Chadwick's hollow claim that everyone agreed with his policies was bound to cause trouble among physicians, many of whom resented the Board's overreaching authority. Margaret Pelling argues that this oversimplification of the debate and inability to consider the most recent science caused the "united opposition of the medical profession" against the General Board of Health.⁶³ Although this bureaucratic monopoly did exist, a fully united medical profession did not. Probably more accurate is a more moderated assessment: Chadwick encountered resistance, often vehement, from many physicians.⁶⁴

That physicians objected to the Board's assertion of control over their area of expertise is hardly surprising.⁶⁵ A popular image of the Board of Health portrayed Chadwick and Smith as inept and stubborn in their mistakes. Physician Archibald Billing declared the Board's October 6, 1848 publication to be "inefficient, and partly erroneous," arguing that anyone who had seen

⁶⁰ Hamlin, *Public Health*, 182-3.

⁶¹ *Ibid.*, 24.

⁶² *Ibid.*, 6-7.

⁶³ *Ibid.*

⁶⁴ Baldwin, *Contagionism*, 130.

⁶⁵ Pelling, *English Medicine*, 6-7.

cholera would not have put forth such ideas. He complained that the Board's pronouncements were either "hackneyed truisms," or confusion about cholera's etiology, with the result that "war is declared against vegetables and fruit."⁶⁶ The image of Chadwick declaring war on fruit conjured up the idea of a Board preoccupied with diet and therefore distracted from important matters. The implication was that failed prophylaxis- Chadwick's misplaced energy- was worse than nothing at all, because it was a waste of resources that could have been used elsewhere.

Many texts mentioned the sanitary condition of London, with their focus squarely on Smith and Chadwick's failures. For instance, offering a vivid and extensive description of the wretched sanitary state of Paddington, Dr. John Gray criticized the "the utter inefficiency of the so-called board of health." His description makes one wonder if cholera was even the worst problem of the neighborhood, as he discussed the "tens of myriads" of flies "with snouts like elephants, and stings in their tails as long as stocking needles." He described the Paddington churchyard as so full of bodies that the soil rose more than four feet above the paths with decaying matter, a gruesome image that implied complete helplessness or ignorance of the Board. Criticizing Chadwick for cataloguing deaths rather than preventing them, he argued that, "Mr. Edwin Chadwick has sucked the brains of the credulous and easily led medical profession for his own advantage." In addition, Gray asserted that the Board's physician, Dr. Smith, "prates and does not act" and "has not been slack in bayoneting him [Chadwick] in the rear."⁶⁷ Interestingly, in this passage, Chadwick is both inept and sinisterly effective at manipulating others- hardly a picture of a man one would want in charge of the lives of millions.

⁶⁶ Archibald Billing, *On the Treatment of Asiatic Cholera* (London: S. Highley, 1848), 3, 8, 9, in Cholera Online: <http://www.nlm.nih.gov/exhibition/cholera/>.

⁶⁷ John Gray, "On the Neglected and Unhealthy Condition of a Part of Paddington: Inefficiency of the Board of Health, and Ingratitude Towards the Medical Profession," *Lancet* 54.1356 (1849): 204-5.

Some physicians explicitly criticized the Board for acting in an unethical manner. Withholding evidence that did not point to miasmatism was one *faux pas* of the Board in 1848. One medical paper argued that the General Board of Health was keeping documents hidden that proved cholera had been communicated from Glasgow to Liverpool because this did not agree with their view as cholera as non-contagious. The author declared that the members of the Board approached the question of contagion “in the same petty light in which they have laid down rules regarding the diet of the public,” as they stubbornly refused to publish material that did not support their cause.⁶⁸ This mention of diet evokes the image of Chadwick’s war on fruit, indicating that it was particularly bothersome. Other physicians saw Chadwick, described as the Board itself, as abusing his authority for monetary gain. One referred to his past failure with the Andover Poor-Law and accused him of handicapping Smith, who might restrict his patronage.⁶⁹ Such complaints, valid or not, are understandable when one considers the amount of authority Chadwick marshaled. One can understand why physicians might worry about the motives of such a powerful man, especially when they felt disenfranchised in the development of public health policy.

Many physicians argued that the Board’s authority should have belonged to physicians, the true experts on cholera. One writer in the *Lancet* argued that sanitary reform would never be completed without physicians, who actually spent time in the neighborhoods with cholera victims, but “it seems the design of the government invariably to humiliate the medical profession, and make them subservient.” He concluded by arguing that only physicians had brought sanitary reform to England, but this effort was not acknowledged.⁷⁰ This suggests that

⁶⁸ “Importation of the Cholera into Liverpool,” *London Medical Gazette, or Journal of Practical Medicine* 8 (1849): 24, in Google Books.

⁶⁹ H. Wilson, letter, to the *Medical Times and Gazette* (1852): 599, in Google Books.

⁷⁰ Gray, *Paddington*, 205.

many physicians were keenly aware of the loss of status when they were forced to report to lay authorities, creating resentment. One fellow of the Royal College of Surgeons quoted an 1817 speech which effectively sums up the medical profession's problems with Chadwick's authority: "We should not suffer crude speculations to go forth, bearing the seeming mark of medical authority, when they are contrary to the sentiments of the bulk of the profession, derogatory to its character, and injurious to society."⁷¹ Thus, many physicians objected to the loss of authority and status in deferring to Chadwick, presenting this situation as damaging to the medical profession and society as a whole.

Lack of Consensus

The widespread criticism of Chadwick and the diversity in etiological theories illustrate the extent to which the British medical field was too disjointed to make an effective stand against cholera. The widening gap between the lay and medical authorities in public health, particularly physicians' anger at Chadwick, points to a striking lack of consensus in the field. Chadwick's all-encompassing sanitary ideas provided, in theory, etiological explanations and practical solutions to carry out effective prophylaxis. However, he lacked the support of the medical community, who blamed him for the failures of Britain's prophylactic measures. Christopher Hamlin describes the political resistance that Chadwick faced from engineers, politicians, and other lay groups, but it is important to note the medical resistance that prevented many physicians from supporting him.⁷² While physicians alone did not lead to Chadwick's lack of success, the lack of unity of the medical and public health profession clearly hampered his efforts. A more conciliatory figure might have had greater success in persuading physicians to support his administration's goals. Ultimately, Chadwick's administration lacked the political

⁷¹ Joshua Waddington, "On the Asiatic Cholera and the Board of Health," *Lancet* 52.1313 (1848): 490.

⁷² Hamlin, *Public Health*, 245-274.

capital and the medical support to carry out his goals effectively, and the Board was not able to protect London from cholera.

The medical community was not entirely united against Chadwick, as there were clearly differences of opinion that prevented effective cooperation between them as well. Part of the problem was that a status differential between physicians, surgeons, and apothecaries led to conflict within the profession.⁷³ As it was “poorly united, overcrowded, and squabbling,” it could not take the lead in public health.⁷⁴ The inability to agree on the proper etiological theories highlights this, as physicians who did not agree on the explanation for cholera could not present a united front against Chadwick. Their disunity was a liability in reaching effective measures. One physician, noting this, pled that it was “imperative” for physicians, “to whom the public look for aid with expectant eye,” to “[cast] aside all idle speculations, all petty discords, and rankling jealousies” and strive to better understand and fight cholera.⁷⁵ This suggests awareness that discord was limiting the ability of physicians to act as a group, thus limiting their power. Physicians in general were not supportive of Chadwick, but lacked the consensus to oppose him effectively as a group.

Conclusion

Britain in 1848-9 abandoned the ineffective quarantines and sanitary cordons of 1832 in favor of sweeping plans of sanitationism, but this did not prove to be the grand solution Chadwick had envisioned. Buttressed by the new authority given to the Board of Health and his confidence in miasmatism, Edwin Chadwick and his administration seem to have become

⁷³ M Jeanne Peterson, *The Medical Profession in Mid-Victorian London* (Berkeley: University of California Press, 1978), 5-12.

⁷⁴ Hamlin, *Public Health*, 6, 49.

⁷⁵ William J. Cox, *The cholera; what has it taught us? Its various modes of treatment examined; and the mode by calomel shown to be the best, with full report on numerous cases* (London: Renshaw, 1850) in Cholera Online: <http://www.nlm.nih.gov/exhibition/cholera/>.

overconfident in their ability to protect London against cholera. The medical community, most of whom detested this hubris and interference into their domain, raised loud outcries about Chadwick's mistakes. Medical authorities were divided, but physicians resented lay intrusion into their field and loudly chastised Chadwick. The Board's public works projects and paternalistic efforts to compel individual members of the community to fight filth became less ambitious as implementation became problematic. While sanitationism was an improvement from the policies of 1832, it was ultimately not very effective.

The reasons for the perceived failure of cholera prophylaxis in 1849 were essentially a lack of consensus and motivation of the medical profession and, to a lesser degree, a faulty understanding of effective prophylaxis. The establishment of the infrastructure for public health interventions led to greater effectiveness in later years, the one success story of this epidemic. However, reliance on the miasmatic theory encouraged sub-optimal solutions. Drudging up dirt in the middle of the epidemic, for instance, usually did more harm than good. While cleaning London would probably have been effective over the long term, Chadwick's strategy was ill-suited to short-term prophylaxis, which was urgently needed during an epidemic. His efforts did little to address the underlying cause, the cholera bacillus, because this concept would take years to develop.

Whether Chadwick deserved the criticism or whether he was turned into a scapegoat by an angry medical profession is an interesting question, but physicians clearly blamed him for the prophylactic failures in London. Thus, his inability to consult or compromise with physicians worsened the lack of consensus in public health. In addition to the diversity of ideas in the field, causing physicians to disagree on proper methods, and moralistic arguments that made some less willing to help cholera sufferers, Chadwick's controversy added to the lack of consensus in the

field. As a result, British efforts at cholera prophylaxis in 1848-9 were too disjointed to be effective.

America

The lack of centralized bureaucracy in America meant a freer marketplace of ideas than in Britain, in which physicians concerned with maintaining their authority argued with each other and lay authorities over the best means to prevent cholera. Sanitationism was important, but did not replace quarantine efforts; more physicians argued for contagionism and theories other than miasmatism; and physicians fought both with alternative practitioners and civil authorities. Physicians criticized health boards for their inability to carry out effective measures, indicating that the generalization of Americans as apathetic does not apply to all physicians. However, there was a notable lack of agreement over the proper etiological theories and prophylactic technology. Sparring between physicians, health boards, and alternative practitioners limited the effectiveness of American public health. While the field lacked consensus in a different manner than the British, it led to the same results, as public health authorities were apparently unsuccessful in preventing cholera.

Experience of 1832

The cholera that struck Britain in 1832 would unleash its fury on America within months, and Americans watched with horror as the disease drew closer. Quarantines were established in the winter of 1831-2 in major Eastern port cities such as New York, Boston, Philadelphia, and Baltimore. New York's Board of Health, consisting of the mayor, city aldermen, and the recorder, had some experience dealing with yellow fever, but barely functioned outside of epidemics.⁷⁶ The Board oversaw public health regulations that essentially consisted only of

⁷⁶ Rosenberg states that even its own members were so disinterested that it often failed to obtain quorum at meetings.

quarantine at the city's ports, but financial ties to business made them unwilling to institute even that.⁷⁷ In addition, a new system of street cleaning was abandoned within a week of its inception. On June 22, the New York legislature passed a bill establishing quarantine between the United States and Canada and providing for the establishment of local health boards, but this effort came too late. When the Board delayed in announcing that cholera had arrived in New York, criticism became increasingly loud, as many felt it had sold out to commercial interests. Editorials began calling for its resignation.⁷⁸

These half-hearted efforts were not unique to New York. Across the United States, local boards of health sprang up, establishing quarantines and cholera hospitals, but many people complained about the dangerous nature of filthy streets. By the time the epidemic struck, most physicians believed in miasmatism and were hostile to quarantines. Despite what Rosenberg describes as physician antipathy towards quarantines, they were crucial to the preventive strategy because laypeople considered cholera contagious.⁷⁹ After the epidemic, most boards of health disappeared, and the 1832 sanitary reforms in New York “did not outlast the heat of August as the Board of Health settled into its customary apathy.” Throughout the United States, the 1832 epidemic had little lasting impact on public health.⁸⁰

1848: Attempts at Sanitationism

The 1832 epidemic had humbled Americans, but memories of it did not spur health authorities to permanent action, and they accomplished little between 1833 and 1848. The story of cholera prophylaxis in America in 1848 reveals, particularly at the beginning, striking

⁷⁷ Rosenberg, *Cholera Years*, 20. This was hardly surprising considering the economic pressure against quarantines; according to Rosenberg, the physician who diagnosed yellow fever in 1819 was threatened with physical violence.

⁷⁸ Rosenberg, *Cholera Years*; Duffy, *Sanitarians*.

⁷⁹ Rosenberg, *Cholera Years*, 25, 37, 78-9. I am not entirely sure that this was actually the case, as I found that considerable support for quarantines existed in 1848.

⁸⁰ Rosenberg, *Cholera Years*, 15-17, 78, 98.

incompetence. Cholera arrived in New York in 1848 to a perfect habitat: a filthy city full of pigs, dogs, and garbage with “ignorant or incompetent” civic authorities whom critics accused of criminal neglect.⁸¹ This reputation for ineptitude was bolstered by the Board’s protracted failure to admit that cholera had entered the city. In New York, from May 11 to 18, eleven cases of cholera occurred, and the Board reported none of them in its reports. Six cases appeared on the 23rd, also unreported by the Board. From April until May 30, while 43 people died of cholera, authorities quarantined only twelve. In one case, sickness was attributed to an Irish immigrant’s intemperance, and no action was taken until other people in his tenement died. Throughout the epidemic, the Board of Health seemed unable to accomplish much, and it finally resorted to using the clergy to help impress upon the public the need to follow its sanitary regulations. A well-intentioned but disastrous campaign against the city’s pig population and the Board’s inability to compel contractors to actually clean the streets reinforced its reputation for uselessness.⁸²

The situation was the same in other cities. In Philadelphia, for instance, eight cases occurred, but the Board of Health reported that there were none. Physicians noted these problems with increasing concern, as many public health officials seemed more committed to keeping the public calm than to keeping it safe.⁸³ Most states and cities had no health boards or public health legislation, as emergency measures from 1832 had long expired. Sanitary reports produced in the wake of epidemics were ignored because of insufficient funding and a lack of concern for public health during periods of relative health. Even when legislation was put into place, many cities had difficulty enforcing it. Particularly problematic were contracts to clean

⁸¹ Rosenberg, *Cholera Years*, 110.

⁸² Rosenberg, *Cholera Years*, 101, 110-115. In this section, Rosenberg recounts a story in which a man declared the city’s pigs to be cleaner than the children of the city.

⁸³ “Editorial and American Medical Retrospect,” *New York Journal of Medicine and Collateral Sciences* 1 (July 1849): 96, in American Periodicals Series Online: <http://proquest.com/>.

the filthy streets. Funding was another significant issue, and boards often lacked the necessary support to make any progress. For instance, in 1848, the Washington, D.C. health board had an annual budget of \$15. Some cities, such as Pittsburgh, allocated funds that were barely used—less than \$1000 out of a possible \$6000 in 1835.⁸⁴ Chicago relied on volunteer sanitary enforcers, as it could not afford to pay for them. In addition, Boards of Health in many cities were notoriously corrupt, drawing public ire. Public disapproval was so high in St. Louis and Cincinnati that groups of citizens forcibly replaced the official boards.⁸⁵

Lack of Consensus

American authorities, caught unaware at the beginning of the epidemic, attempted to check cholera's spread. The 1849 epidemic, however, was "far more severe" even than that of 1832, and over 5,000 people died in New York City alone.⁸⁶ This lack of apparent success was not because of apathy, as it is clear that many physicians and health authorities were very concerned with establishing effective systems of public health. Such steps were limited by several factors. It was obviously problematic that American cities lacked infrastructure, and a lack of consensus hampered efforts to establish it. Some physicians argued over etiological theories such as contagionism and miasmatism; others debated whether particular groups such as Irish immigrants were responsible. They also argued over the effectiveness of quarantines, sanitary measures, and combinations of the two. This lack of cooperation occurred between fields as well, as physicians were frustrated by power struggles with lay authorities as well as non-traditional healers such as homeopaths. These disagreements were particularly strong because of the weak centralized authority, as physicians had more diversity to compete with but

⁸⁴ Duffy, *Sanitarians*, 4, 84.

⁸⁵ Rosenberg, *Cholera Years*, 110-118;

⁸⁶ Roy Porter, *The Greatest Benefit to Humanity: A Medical History of Humanity* (London: W.W. Norton, 1999), 417; Rosenberg, *Cholera Years*, 114.

also a potential for greater gains than British physicians. As in Britain, sanitationism worked on the faulty paradigm of miasmatism, but more problematic was that authorities and physicians could not agree on the proper course of action. The lack of consensus, within the medical field and between physicians and health authorities, limited the ability for authorities to build infrastructure and led to rather dismal efforts at cholera prophylaxis in 1849.

Etiology: Contagionism and Miasmatism

The American discussion of etiology, particularly where contagionism and miasmatism were concerned, was more varied than the British, as several popular theories competed for followers. Such debates understandably caused problems for the profession's popular image. One medical professor opined to his class that, "the causes of Cholera have been the occasion of untold embarrassment to the profession, the world over."⁸⁷ According to John Duffy, physicians' indecision "frustrated them and contributed to the public quarrels that literally tore them apart."⁸⁸ Such debates represented freedom from the dogmatic centralized authority of Chadwick's administration, which stifled debate in order to produce a "right" answer. No such body existed in the United States to silence opposing voices in the conversation, so a variety of viewpoints, some more popular than others, vied for respectability.

During the 1848 epidemic, a majority of American physicians viewed cholera as caused by miasma, connecting filth with the high rates in particular areas.⁸⁹ One editorial in the *Boston Medical and Surgical Journal* argued that cholera was non-contagious, non-infectious, and miasmatic, blaming the filth on the ground for producing cholera in the air.⁹⁰ Other prominent Northern physicians viewed cholera as caused by an infectious miasma, which infected people

⁸⁷ Mitchell, *Lecture*, 4.

⁸⁸ Duffy, *Sanitarians*, 79.

⁸⁹ Rosenberg, *Cholera Years*, 165.

⁹⁰ "The Remote and Immediate Causes of Cholera," *Boston Medical and Surgical Journal* no. 40 (1849), 396, in American Periodical Series Online, <http://www.proquest.com/>

not directly but through a poisoned atmosphere.⁹¹ Even the physician in charge of quarantine in New York's harbor, who chronicled the beginning days of the epidemic, could not reconcile his personal experiences with contagionism and was skeptical that it could explain the spread of cholera into the city.⁹² Considering that it was his duty to enforce quarantine, it makes sense that he would rather blame a miasma, over which he had no control, than admit that he had allowed infected people into the city. In addition, the idea of cholera as fermentation was widely accepted, as it explained the portability of cholera, blamed filth, and fit with the miasmatic theory.⁹³ Overall, like in Britain, miasmatic seemed to be the most popular explanation.

While miasmatic predominated, several other ideas appeared in various reputable sources. Contagionism was popular, although the exact mechanism differed from physician to physician. An editorialist in the *New York Journal of Medicine and Collateral Sciences* noted that while cholera was contagious, he could not tell if the method of spread was a parasite, animalculae, fungus, or spores.⁹⁴ By 1849, the idea that cholera was portable, though not necessarily contagious, came into favor. Physicians suggested that cholera resulted from a micro-organism, chemical reaction (essentially fermentation), or fungus.⁹⁵ Many physicians toed the line between miasmatic and contagionism, advocating contingent contagionism. One renowned New York physician described this as when diseases that were not normally

⁹¹ Abraham Lidden Cox, *The Pathology and Treatment of Asiatic Cholera, So Called* (New York: John Wiley, 1849), 71, in Cholera Online: <http://www.nlm.nih.gov/exhibition/cholera>; Augustus Mason, *The Cholera. Brief Hints for the Prevention of Cholera, with a plain account of its symptoms, the proper preventive measures, and the management of its early stages* (Lowell: B.H. Penhallow, 1849), 3-6, in Cholera Online: <http://www.nlm.nih.gov/exhibition/cholera>; other examples abound.

⁹² John W. Sterling, "Original Communications," *New York Journal of Medicine and Collateral Sciences* 3.1 (1849), 9, in American Periodicals Series Online: <http://www.proquest.com/>

⁹³ Rosenberg, *Cholera Years*, 171-2.

⁹⁴ J K Mitchell, "Critical Analysis," *New York Journal of Medicine and Collateral Sciences* 2.6 (1849), 340, in American Periodicals Series Online: <http://www.proquest.com/>

⁹⁵ Rosenberg, *Cholera Years*, 168-9.

communicable were contagious in a “close, confined, or impure atmosphere.”⁹⁶ Other physicians could not explain cholera, but disliked miasmatism. One physician, Dr. Dickson, noted in the *New York Journal of Medicine* that it was incredibly vague and did not explain anything- an understandable complaint.⁹⁷ Overall, while miasmatism was certainly important, examples of other ideas were more prominent in American sources than British ones, which likely points to the less regulated structure of the American field and the imposing influence of Chadwick and the General Board of Health.

Virtue vs. Environment

Intemperance was also an important theme, but one that did not receive as much attention as it had in Britain. Some texts ignored the idea of intemperance; most others mentioned in passing, along with a wide variety of other predisposing causes. When physicians did mention it, in general, their language did not illustrate the disgust that permeated the British field. For example, one editorialist in the *Boston Medical and Surgical Journal* pointed out that intemperance was an important cause of cholera in every treatise he read; another wrote that cholera was “excited by poverty and intemperance.”⁹⁸ These authors are characteristic of American physicians, who often mentioned intemperance but declined to focus on it or use overtly judgmental language. Some of the strongest language present at the time, present in a report on cholera found in a Boston medical journal, was that “a drunkard rarely survives the

⁹⁶ Charles Broadhead Coventry, *On Epidemic Cholera* (Utica, NY: University of Buffalo, 1848), 3, in Cholera Online: <http://nlm.nih.gov/exhibition/cholera/>

⁹⁷ Samuel Henry Dickson, *On the progress of the asiatic cholera during the year 1844-45-46-47-48 / with remarks by S. H. Dickson* (New York: 1849), 14, in Cholera Online: <http://nlm.nih.gov/exhibition/cholera/>

⁹⁸ N. Williams, “The Remote and Immediate Causes of Cholera,” *Boston Medical and Surgical Journal* 40 (1849): 396, in American Periodical Series Online: <http://www.proquest.com/>; Fred B. Page, “Cholera in New York-Spotted Fever,” *The Boston Medical and Surgical Journal* 40 (1849): 479, in American Periodicals Series Online: <http://proquest.com/>.

attack of cholera.”⁹⁹ Such a statement was relatively calm compared with many examples encountered in the British documents. While intemperance clearly was not ignored, the tone of many documents, at least in the medical field, did not evoke strong feelings, which was very different from the British documents.¹⁰⁰

The exception to this was when discussing immigrants, particularly the Irish, whom many physicians viewed as filthy disease vectors. One Boston physician wrote that cholera was particularly rampant among new immigrants, who “[are] intemperate, extremely uncleanly, and mess together in the rudest manner,” and the “imprudent” and dirty African American population. He argued that while intemperance was bad, being a member of such filthy groups was worse for one’s health.¹⁰¹ The Massachusetts Sanitary Commission described the filthy and crowded nature of Irish tenements with immoral people “huddled together like brutes,” arguing that such filth led to indifference and “utter degradation,” not to mention physical diseases like cholera.¹⁰² Such statements indicate the degree to which many Northern port cities feared that immigration brought disease. Not only did the Irish bring disease with them, but they also bred it within Boston itself. While not all physicians linked virtue with cholera, many of those who did saw it as a predominantly foreign problem, indicating the degree to which cholera brought latent ethnic tension to the surface. Such issues were likely more evident in America than Britain because America received much larger waves of impoverished immigrants than Britain did during the period.

⁹⁹ John C. Warren, Jacob Bigelow, C. Shattuck, Geo Hayward, et al. “Cholera Report,” *The Boston Medical and Surgical Journal* 39.23 (1849): 451, in American Periodicals Series Online: <http://www.proquest.com/>.

¹⁰⁰ Although Rosenberg emphasizes that the role of morality in cholera was important in America, his sources for this are mainly religiously affiliated newspapers, obviously a different demographic than physicians. Researching more popular sources would probably uncover more evidence for intemperance as a predisposing cause of cholera.

¹⁰¹ Thomas Sewall, “Letter on Epidemic Cholera,” *Boston Medical and Surgical Journal* 41.9 (1850): 1, in Google Books.

¹⁰² Lemuel Shattuck, Nathaniel Prentiss Banks, and Jehiel Abbott, *Report of a General Plan for the Promotion of Public and Personal Health* (Boston: Dutton and Wentworth, 1850), 426, in Google Books.

As in Britain, many physicians blamed the environment for cholera, not immorality. Environment was not yet entirely to blame, but it began to play a larger role in the discussion about cholera's spread.¹⁰³ One editorial in a Boston medical journal indicated approval that cholera was not perceived to be a moral failure: "we rejoice to see, in the present pestilence, that they [the citizens of Boston] look to the physical causes of disease, in a more just degree."¹⁰⁴ While moral failings were important in a few texts, as discussed above, the vast majority of sources attributed cholera to unhealthy surroundings: nuisances, horrible smells, waste, or a variety of other factors. Nearly every physician noted the danger of dampness, decay, and filth; inadequate or dirty housing and clothing and a lack of ventilation were also primary reasons for cholera's appearance.¹⁰⁵ One New York physician wrote that cholera, "the scourge of our vicious social state," predominated among the poor, overworked, and homeless.¹⁰⁶ Such opinions supported sanitary reform, as it became clear to physicians and public health authorities that if filth was the cause of cholera, people deserved a cleaner environment.¹⁰⁷

Thus, even more than in Britain, a significant divide existed in the American field over questions of etiology. Without a centralizing authority to set the "official" answer, differences in opinion were even more noticeable. In addition to the debate over contagionism and miasmaticism, other physicians marked Irish immigrants as disease vectors. This selection of a particular ethnic group raised problems because it scapegoated them and distracted from the larger issue of the medical establishment's responsibility to respond. Growing ideas about environmental causes thus competed with older, judgmental explanations for cholera, causing an

¹⁰³ Rosenberg, "Cholera Years," 133.

¹⁰⁴ "Burials in Cities," *The Boston Medical and Surgical Journal* 41.13 (1849): 258, in American Periodicals Series Online: <http://www.proquest.com/>.

¹⁰⁵ Carolus Fridericus Hoffendahl, *On the Homeopathic Treatment of Cholera* (Boston: O. Clapp, 1849), 12, in Cholera Online: <http://nlm.nih.gov/exhibition/cholera/>; Shattuck, Banks, and Abbott, *General Plan*, 429. These are just several examples I chose, which are indicative of nearly every document of the period.

¹⁰⁶ Dickson, *Progress*, 19.

¹⁰⁷ Mason, *Brief Hints*, 5 is a good example of this, although examples abound in numerous texts.

even greater divide in the field. A lack of consensus about etiology is important to consider because it was not only a theoretical problem. If physicians could not decide what caused cholera, there would be indecision about the best ways to prevent it, and there was no national body to settle the question. A diversity of etiological theories, many of which did not support the same prophylactic measures, led to a much stronger debate over quarantine and sanitation than occurred in Britain.

Quarantine

While the British had abandoned quarantines, Americans argued over whether they were effective or worth the negative repercussions. American public health throughout the nineteenth century utilized quarantines and sanitary laws as the first line of defense against disease, but this did not preclude criticism.¹⁰⁸ Rosenberg argues that even contagionists were ambivalent about quarantine, and anti-contagionists openly mocked it.¹⁰⁹ This probably had much to do with the fact that many physicians viewed quarantines as “mortifying failures.”¹¹⁰ However, while the British did away with them entirely, Americans held on to them, even after they had failed again in Britain in 1848. Contradictory to Rosenberg’s assertion, evidence exists that opinions on the subject of quarantine were mixed, as not all physicians viewed them in a negative light.

As in Britain, many physicians argued that quarantines were complete failures.¹¹¹ Others argued that they were not only useless, but dangerous, as they produced panic that caused considerable harm.¹¹² Such physicians viewed quarantine as a panacea for and a distraction from the larger ills that needed to be solved to prevent cholera. One group of physicians took a moderate approach, pointing out that quarantines and sanitary cordons had not been effective,

¹⁰⁸ Duffy, *Sanitarians*, 4.

¹⁰⁹ Rosenberg, *Cholera Years*, 168

¹¹⁰ Dickson, *Progress*, 19.

¹¹¹ Shattuck, Banks, and Abbott, *General Plan*, 336; Dickson, *Progress*, 12.

¹¹² Coventry, *On Epidemic Cholera*, 3.

but they made the public feel safer. Thus, out of respect for physicians and laypeople who felt that quarantine worked, Boston physicians would keep screening ships for cholera and removing infected patients.¹¹³ Even though many physicians believed that quarantines were failures, nearly all health authorities continued to employ them anyway.

Unlike in Britain, several physicians indicated that they viewed quarantines as effective—if properly carried out (which was obviously the problem). Physicians in New York hoped fatalistically for quarantines to work, but began attempts at sanitary reform for when the inevitable breach occurred.¹¹⁴ One Baltimore physician noted that quarantine regulations needed to be reformed to be effective, as it did not help to hospitalize only the sick from an infected ship if the “healthy” people set free into the community later spread the disease. He also argued that municipal authorities alone could not handle quarantine, as it should have been the job of the federal government to establish uniform and effective quarantines.¹¹⁵ While these texts are critical of quarantines, their qualms are with the implementation, not the theory behind them, and suggest properly implemented quarantine would be a positive step. This is significant because it points to evidence that contemporary physicians saw a lack of national consensus as very problematic. If Baltimore allowed cholera into the country, it made no difference if New York had a perfectly implemented system, since everyone in the Northeast would soon be exposed to cholera. It is easy to imagine that a lack of coherent policies regarding quarantine would be dangerous, as a half-hearted quarantine could be worse than not having one at all.

¹¹³ Warren, Bigelow, Shattuck, Hayward, et al, *Cholera Report*, 451.

¹¹⁴ “Miscellanea,” *New York Journal of Medicine and Collateral Sciences* 2.4 (1849): 118, in American Periodicals Series Online: <http://proquest.com/>.

¹¹⁵ Thomas Buckler, *A History of Epidemic Cholera: As it Appeared At the Baltimore City and County Alms House, in the Summer of 1849* (Baltimore: James Lucas, 1851), 13, in Google Books.

Evidence also indicates that some physicians wholeheartedly supported quarantine as late as 1849. One Baltimore physician, Dr. Buckler, directly addressed the issue of why quarantines were useful in America and not in Britain:

The European governments are relaxing the rigor of their quarantine laws ... but there is no reason why we should imitate their example, since the position of this country, in these respects, is entirely different from any other on the face of the globe. The diseases we import are proved to be both infectious and contagious. From the old world emigration is constantly pouring out, while with us it is always flowing in.¹¹⁶

Thus, if cholera were contagious and the majority of infected people would be traveling to the United States, one could make a legitimate case for instituting quarantine. The differing views of contagionism and anti-contagionism serve as a crucial distinction, as contagionists were much more likely than miasmatists to view quarantine as effective. For instance, one New York physician argued that quarantine was crucial at the port because the luggage and clothing of travelers probably would “harbor the invisible spores” of disease.¹¹⁷ If one perceived cholera to be spread by physical means, then quarantine obviously made sense, as it would prevent such organisms from entering. In addition, Dr. Buckler’s comment that America’s position differed from its European counterparts is notable because it argued that quarantines could be effective at home, even if discarded abroad, because of geographic differences. This suggests Peter Baldwin’s idea of “geoepidemiological location,” or the “topography required to make certain preventive strategies work,” because it indicates that some Americans viewed quarantines as effective for strategic and geographic reasons that might not apply in other nations.¹¹⁸

Quarantines were a contentious issue. Nearly all physicians agreed that ineffective ones did no good, but opinions in the medical community differed over whether a well-executed

¹¹⁶ Buckler, *Baltimore*, 13.

¹¹⁷ Mitchell, *Critical Analysis*, 340

¹¹⁸ Baldwin, *Contagion*, 550.

quarantine would be advisable. This indecision reflected both physical, geographic realities and perceptions of the medical profession, as America's situation *was* different from that of the British. Because of greater British dependence on mercantile shipping, its smaller size, and greater proximity to infected regions, it was much harder (physically and economically) to prevent or reliably quarantine every ship. This is not to say that quarantine was easy on New Yorkers, as it was not. However, a strict quarantine might well have kept cholera out of America for longer, as the Atlantic Ocean provided significant protection. In addition, American cities were left to their own devices, with no over-arching federal policies on cholera prophylaxis. This contrasts starkly with Britain, where Chadwick effectively monopolized the health authorities to cement his own ideas. Without this centralizing influence pronouncing quarantine pointless, it is understandable that public health leaders did not necessarily gravitate in this direction. While this indecision was understandable, a lack of national consensus probably helped cholera spread.

As quarantines did fail and cholera eventually spread to nearly every Northern city, it is fair to question how stringent such procedures were. While Boards of Health were obviously not going to admit culpability for allowing cholera into their cities, one example shows how this might have occurred. The New York physician in charge of quarantine at Staten Island described what occurred in 1849, when cholera first spread into the city. When several cases of diarrhea appeared on board a ship from Europe, the authorities instituted "quarantine" on Staten Island. However, authorities allowed the cabin passengers to enter the city, and only the inhabitants of steerage were held. Those who remained in state custody had no access to showers or clean clothes and were packed into close quarters with poor ventilation. The physician mentioned in passing that authorities "lost" one individual (hardly a statement that

inspires much confidence) and sent 11 to the cholera hospital, where they would have been in close contact with physicians and nurses not forced to stay within the walls of the hospital. He revealed at the end, as an afterthought of sorts, that more than 100 of the immigrants “scaled the walls and fled to the city” and neighboring towns.¹¹⁹ This image of Irish passengers fleeing like ants past the dubious defenses of the health authorities suggests that the implementation of quarantines, in New York at least, left much to be desired. If quarantines were conducted in such a manner in all cities, it leaves little to the imagination how the epidemic spread so quickly.

Sanitationism and Lack of Physician Apathy

In addition to quarantinism, sanitationism also played a large role in prophylaxis and was implemented in many cities after quarantines collapsed. The failures at the beginning of 1848-9 finally spurred action, as many civil authorities began implementing projects to remove nuisances, clean streets, and generally improve the sanitary conditions of cities.¹²⁰ Boards gradually realized how best to implement sanitary reforms, although not always in time. For instance, New York’s Board of Health reported that they gave up on the contract system because this did not actually result in clean streets.¹²¹ Likewise, Boston’s board discovered that when physicians supervised public works projects rather than trusting the workers, they were much more effective and mortality declined noticeably.¹²²

Evidence from Baltimore and Boston indicate that prominent American physicians advocated for intensive sanitary reform, often more than authorities were willing, or able, to undertake. Noticeable here is the acknowledgement that intrusiveness could be necessary to facilitate public health. For instance, one Baltimore physician, Dr. Buckler, wrote a book in

¹¹⁹ Sterling, “Original Communications,” 9.

¹²⁰ Warren, Bigelow, Shattuck, and Hayward, “Cholera Report,” 451.

¹²¹ *Documents of the Board of Aldermen of the City of New York*, vol. 41 (New York: McSpedon & Baker, 1850), 228, in Google Books.

¹²² Sewall, “Letter,” 1.

1850 detailing the sanitary steps taken in 1848-9 and his suggestions for further improvement. He said that removing filth from the alms-house checked the spread of cholera, reinforcing the crucial (and effective) nature of sanitary reform. He argued that the lack of sanitary police made it difficult to prevent nuisances on private property. While the health authorities were relatively successful in cleaning public streets, they could not wipe out cholera because of the failures of individual property owners, which revealed the need for a “volunteer system of police.” This idea of intrusion for the sake of public health evokes British developments, which he declared to be a model of public health. He stated that while the British Parliament paid attention to sanitary reform, “with us, these questions seldom arise, and little or no attention is paid to the department of public hygiene.”¹²³ Dr. Buckler’s book indicates a perceived lack of attention by sanitary authorities, as some physicians wanted more intrusive measures than authorities were willing to undertake.

A similar document in Boston illustrates that Dr. Buckler was no anomaly, as sanitary authorities in Boston drew much the same conclusions after the epidemic. The Massachusetts Sanitary Commission’s 1850 *Report of a General Plan for the Promotion of Public and Personal Health* laid out a plan for preventing future cholera epidemics. After a glowing discussion of Chadwick, this report argued that the current laws were confusing, helpful, and ineffective, particularly because they allowed reform but did not require it. Their plan, thus, was to require certain measures. Important among them were a state General Board of Health (required to have physicians, a lawyer, scientist, and engineer), house-to-house visitations, the ability to fix private roads, yearly sanitary surveys, better waste collection and water safety, and regulation of

¹²³ Buckler, *Baltimore*, 13-39.

inquests, burials, food, drugs, tenements, immigration, waste collection, and the construction of new buildings.¹²⁴

Such extensive preparations indicate that the health authorities were willing, by the end of the epidemic, to support a profound level of regulation for the sake of public health. These texts indicate that physicians and health authorities were cognizant of sanitary failures, as there was obviously a reason why authorities felt the need to overhaul public health systems. What is particularly interesting about them, though, is their support for rather intrusive methods. A concern for fixing private as well as public nuisances obviously deviates from the stereotype of Americans as apathetic. Thus, physicians did not necessarily reject sanitary measures as authoritarian, but argued that they could be adapted to serve the realities of epidemics in the United States.

Not all physicians agreed that intrusive measures were necessary. However, the evidence for this is slim, as many physicians clearly viewed the public's health as important enough to sacrifice some individual rights. To fully describe the field, though, it must be noted that a portion of physicians were skeptical of interventions.¹²⁵ One New York physician pointed out that individuals should do their own duty, and only "when individual efforts are inadequate," seek the Board's help.¹²⁶ Another physician, located in Boston, argued that there was too much concern about the actions of health boards, which unnecessarily frightened people and made them more susceptible to illness. He claimed there was no need for boards of health: people just

¹²⁴ Shattuck, Banks, and Abbott, *General Plan*, 111-245, 425.

¹²⁵ While some physicians griped about the intrusion of civil authorities into their field, this is not what I am addressing in this paragraph. Evidence suggests that some physicians disagreed with intervention for its own sake, regardless of their authority over it. They reflect the stereotypical Jacksonian anti-government sentiment, which I was surprised to find in much fewer places than I expected (at least in the medical literature.) I will discuss in a later section physicians who seemed to object more to lay intrusion than the interventions themselves, which I see as a separate argument.

¹²⁶ "Miscellanea," 118.

needed to keep streets clean and avoid nuisances, and cholera would not be a problem.¹²⁷ These examples provide some evidence for anti-interventionist sentiment, but much less than might be expected.

Significant differences in prophylactic measures existed in the American field; some physicians wanted quarantines, others sanitationism, others a combination of both. Within this debate, some argued that quarantines could be effective in certain circumstances, while others asserted that they could never be effective, which made the field even more complicated. As previously discussed, due either to economic realities or a lack of state commitment to public health, funding in many cities was particularly limited. The decision of where to focus money, then, was no theoretical issue, as more money for quarantines would mean less for sanitationism, and vice versa. The unwillingness of public health authorities to stick to one paradigm caused problems, both in specific cities and on the national level. Within cities, dissent led to a splitting of funding which hampered public health efforts. At the federal level, the lack of uniform policy was problematic because even if one city had an effective quarantine, not all did, which could let cholera spread inland easily.

Medical Infrastructure/ Professional Conflicts

Relationships with Sanitary Authorities

A lack of effective centralized authority led to conflicts with lay authorities, as physicians often disagreed with the implementation of prophylactic techniques. The Boards of Health encountered various forms of criticism from physicians particularly for being inefficient, wasting money, and ignoring physicians. Especially bothersome to physicians were their perceived despotism, ineptitude, and lack of qualifications. Some physicians complained that Boston

¹²⁷ "Preparation for the Cholera," *The Boston Medical and Surgical Journal* 39.18 (1848): 364, American Periodicals Series Online: <http://proquest.com/>.

Board members wasted money by eating gourmet meals instead of working on sanitary reforms. This was a particular problem when the bureaucracy was perceived to be cumbersome and wasteful. One physician declared that there were “officers enough in the Board of Health to conduct the affairs of the South American Republics.”¹²⁸ Clearly, some physicians viewed Board members as wasteful, inept outsiders. A particularly vivid example of wasteful behavior involves the Boston Board’s quarantining of figs, which weighed too much for their container and promptly rolled out to sea, at taxpayer expense. The physician who related that story pointed out that the Board did not listen to the advice of physicians, who actually carried out the orders. He argued that the Board should consist entirely of physicians, who would not make such mistakes. Asserting that “some of the most wooden-headed, thick-pated, unqualified persons in the whole community, whose only distinguishing trait is a mulish obstinacy and persistence in measures that could neither be sustained by reason nor sanctioned by precedence” served on the Board, he argued that physicians had the knowledge and experience to deal effectively with cholera. Thus, they should not have to submit to lay authorities.¹²⁹ These complaints indicate the extent to which some physicians felt that health authorities were encroaching upon their turf and wasting money.

One might expect that Americans’ individualism led to a dislike of public health measures, as Duffy argues.¹³⁰ However, while a hint of Jacksonian anti-government ideals exists in the sources, the criticisms mentioned above represent resentment of lay authority in the medical profession, not government in general. As discussed in previous sections, many American physicians did advocate for broad sanitary reforms and greater government

¹²⁸ “Statistics and Reports on Cholera,” *The Boston Medical and Surgical Journal* 41.19 (1849): 383, in American Periodicals Series Online: <http://www.proquest.com/>.

¹²⁹ “Boards of Health,” *The Boston Medical and Surgical Journal* 41.6 (1849): 124, in American Periodicals Series Online: <http://www.proquest.com/>.

¹³⁰ Duffy, *Sanitarians*, 138-9.

intervention. Thus, it was not the existence of a bureaucracy that bothered most physicians, but the fact that they were not allowed enough influence within it.

While at least a few physicians resented the Boards, there are many fewer examples of criticism in American sources than British sources, as Chadwick's authority inspired a greater outcry than any American health authority. It is probably true that his visibility would have made him a lightning rod anyway, as he was a representation of British bureaucracy, and the centralized authority also focused criticism in one place. In addition, his tendencies to stifle debate and narrow-mindedly pursue his own goals were understandably viewed by physicians as a threat to their authority. No such persona or body controlled debate in the United States, allowing debate to flourish. However, Americans faced more competition from other physicians: less vocal criticism of health authorities did not mean that there was greater consensus in the field. Tension in the American field was more widespread, rather than directed at one particular person, but created as many problems as it did in Britain.

Alternative Practitioners

One conflict that stood out in the American medical literature was between allopaths (traditional physicians) and alternative practitioners, as traditional physicians claimed to be the only legitimate sources of medical authority. Many physicians vehemently objected to the claims made by homeopaths, hydropaths, and other eclectic practitioners. One allopathic physician responded angrily to an article placed in a Boston medical journal by a homeopath about the success of homeopathy in New Orleans, arguing that his claims were false, impossible, and misleading. He asserted that the other physician overestimated the number of cholera cases in New Orleans to make homeopaths seem more effective. According to the eclectic's (ostensibly made-up) data, more people died of cholera than were actually ever sick. The physician, only

referred to as DWB, pointed out that there was no official source of mortality data in New Orleans, and allopaths and homeopaths did not associate with each other, so there was no way he could have obtained this data. This statement itself is revealing because it indicates the extent of separation between the two groups. DWB proceeded to insult the homeopathic practitioner, declaring, "To us, allopaths, this would appear quite an important mistake; but by those who take such contracted, such infinitesimal views of matters and things medical, to say nothing of the truth, doubtless the difference is considered trifling."¹³¹ This indicates the disdain many allopathic physicians had for alternative practitioners.

In addition, in Cincinnati, the Board of Health sued eclectics, hydropaths, and homeopaths for not reporting cholera deaths, but court threw the case out, implying that if they were not normally viewed as physicians, they did not have the responsibilities of physicians. When the current Board's tenure ran out, a "manifestation of war among the craft" occurred in the newspapers between allopaths and eclectics, exposing the "peculiar jealousies" of the medical profession. When the new Board appointed an alternative practitioner to the cholera hospital, the allopathic physicians refused to report their cases of cholera.¹³² These two anecdotes illustrate, rather ironically, the unprofessional antics resulting from tensions around the professionalization of medicine. Because traditional physicians did not have the authority they felt they deserved, many criticized alternative practitioners.

Conclusion

The American experience with cholera prophylaxis in 1848 was characterized by indecision and conflict over the theories behind and practice of cholera prophylaxis: sanitation

¹³¹ DWB, "Homeopathic Treatment," *The Boston Medical and Surgical Journal* 41.5 (1849): 101, in American Periodicals Series Online: <http://www.proquest.com/>.

¹³² "Cincinnati Board of Health," *The Boston Medical and Surgical Journal* 40.26 (1849): 525, in American Periodicals Series Online: <http://www.proquest.com/>.

and quarantinism, miasmatism and contagionism, and moral and environmental explanations. The idea that Americans were apathetic about public health and more concerned with preventing government intrusion has very little support, as many physicians and health authorities recognized the necessity of compromising some individual rights for the public good. While the British relied on a centralized authority to set policy, Americans were exposed to Chadwick's ideas but had no incentive to follow them if they disagreed. Thus, with a weak centralized authority, there were definite struggles in the profession over who would have the power to determine what methods of cholera prophylaxis would be in place. This resulted in disjointed and ultimately ineffective responses to cholera.

Chapter 1 Overall Conclusion

In 1848-9, neither the British nor the Americans had much success implementing effective forms of cholera prophylaxis. One explanation for this was that sanitationism, relying on the miasmatic theory, did not address the underlying problem behind cholera, the bacillus. While sanitationism carried out to its fullest extent would have probably been reasonably effective, the efforts in use were not targeted to address cholera, but filth generally, and thus did not address the actual problem. In addition, the quarantines in place in the United States were not strict enough to adequately prevent cholera's entrance. However, flawed etiology cannot completely explain the inadequacy of efforts toward cholera prophylaxis. Health authorities were much more successful in 1866 operating on a different, but also technically incorrect paradigm. The ideas of John Snow and Max Joseph von Pettenkofer led to more effective interventions, despite that fact that they were not entirely correct, because they were implemented much more thoroughly.

More problematic than the theories underlying their actions was the lack of consensus in both fields. British physicians, irritated with Chadwick's dogmatic authority, resisted allying with public health authorities. In this case, the problem originated with too much central control. American physicians, by contrast, faced a decentralized public health system that was fragmentary and ineffective in most cities- marginally better in others, by the end of the epidemic. The tension in America resulted because physicians, frustrated by the lay intervention in their profession, jockeyed for authority in a rather disorganized environment. Thus, debates over etiology and prophylactic measures were significantly more pronounced in America than Britain, while the British directed their animosity at Chadwick's administration. By the end of the epidemic in 1848, physicians in both countries perceived efforts at cholera prophylaxis to be ineffective, and the secondary scholarship supports this. The lack of consensus in both countries, in addition to ineffective methods of prophylaxis, created environments in which public health interventions were unlikely to work.

Chapter Two

1866: Increasing Effectiveness

Cholera struck Britain and America again in 1866. This time, however, the balance of power had shifted from cholera to public health authorities, who achieved much more apparent success than they had in 1849 or 1854. The ideas of John Snow and Max Joseph von Pettenkofer, who argued that cholera was communicable, influenced the development of new, more effective sanitary technology. Neoquarantinism and disinfection targeted infected people and locations specifically, allowing authorities to focus their energy where cholera was most likely to spread. Such technology required extensive public health infrastructure, which expanded on previous efforts in Britain and developed in several U.S. cities. In addition to much stronger infrastructure and more efficient technologies, success in slowing cholera's spread resulted to a large degree from greater consensus within medical communities and between physicians and public health authorities. Better relationships allowed physicians and health authorities to work together toward the same goal, rather than fighting, and achieve marked steps toward effective cholera prophylaxis. Some cities, lacking infrastructure or functional health authorities, failed to prevent cholera's ravages. However, the experience of cities such as London, New York, and Philadelphia, in which authorities produced notable efforts against cholera, indicates the extent to which effective responses to cholera were possible. While not every city or borough was successful, those with cooperation, technology, and infrastructure could significantly reduce mortality from cholera.

Britain

The British experience with cholera prophylaxis in 1866 was, in several ways, a dramatic shift from 1849 and 1854.¹³³ While sanitationism continued, it differed from the widespread reforms Chadwick had envisioned in important ways. Ambitious public works programs, such as water quality and sewers, were strengthened by the realization that cholera could be spread by contaminated water, ideas put forth by John Snow and Max Joseph von Pettenkofer in 1849 and 1855, respectively.¹³⁴ Nuisance removal continued, but health authorities focused on locating and disinfecting areas where disease appeared to be located, rather than haphazardly removing all possible sources of cholera. Neoquarantinism and compulsory isolation helped to check the spread of disease, and health authorities gained greater power in the *Sanitary Act* of 1866. John Simon's tenure as Medical Officer of Health was much less inflammatory than Chadwick's had been, and the medical profession experienced much less conflict with health authorities. Overall, more effective prophylactic technology, the continuation of sanitary infrastructure that had been underway in 1849, and more consensus in the field between health authorities and physicians led to greater apparent success with cholera prophylaxis in 1866.

¹³³ I have chosen not to write a chapter about 1854 because the epidemic was not very widespread in the United States, which would essentially mean comparing a nation in the midst of an epidemic and a nation with sporadic visits from cholera. In addition, while Snow's ideas were published in 1849, they had yet to gain much ground. In addition, Chadwick's continued authority essentially made 1854 so much like 1849 in London that a new chapter would not have been very interesting.

¹³⁴ John Snow and Max Pettenkofer's ideas were not exactly the same, but they were similar enough to be mentioned together in sources of the time. While Snow argued that cholera could be infectious upon leaving the body, Pettenkofer believed that it needed to ferment underground for a period of time before it could infect new victims. While Snow's ideas had originally been published in 1849, he lacked the evidence at that time to convince many people. With his 1854 investigation of the source of cholera, he developed much more data to persuade health authorities (and other physicians) that cholera could be spread through water and personal contact, and his ideas began to gain much wider credence. William Budd had similar ideas around 1856, although his work focused on typhoid.

Charles Nottidge McNamara, *A History of Asiatic Cholera* (London: Macmillan, 1876) 219; John Snow, *On the Mode of Communication of Cholera* (London: J. Churchill, 1849), 5, in Cholera Online: <http://www.nlm.nih.gov/exhibition/cholera/>; Porter, *Greatest Benefit*, 413.

Etiology

Contagion, Infection, and Water

Etiology played a more important role in the fight against cholera than it had in previous years, as the majority opinion in 1866 represented a dramatic paradigm shift from 1849. Most physicians agreed that cholera was at least infectious, if not contagious, some of the time. Because methods based in miasmatism had failed to deliver the promised results, more physicians gave credence to the doctrines of infection and contagionism. These theories offered explanations of cholera that seemed to fit better with the new evidence, particularly the idea of contaminated water supplies. Not all physicians believed that cholera was contagious, infectious, or somehow spread by human contact, but the majority did, and public health policy followed this. This would be crucial, as the *Lancet* declared the mode of propagation of cholera to be the “great lesson” of the 1866 epidemic.¹³⁵ While greater success in cholera prophylaxis owes much to the infrastructure established by legislation such as the *Sanitary Act*, this would not have been possible without the shift in understanding of etiology that prioritized disinfection over general sanitationism.

Many physicians viewed cholera as infectious, although debate existed over whether it was directly contagious or spread by other means. The *Sanitary Act* of 1866 treated cholera as a “contagious or infectious” disease, while Edwin Farr, the Registrar General, stated that “cholera stuff” spread the disease.¹³⁶ One British medical journal argued, “that it spreads by means of human intercourse appears quite certain,” but they could not rule out other means of propagation. Later, they said that evidence indicated that cholera was “transmissible.”¹³⁷ Other physicians

¹³⁵ “Untitled,” *The Lancet* 88.2261 (1866): 727-8.

¹³⁶ W.H. Michael, *The Sanitary Acts*, 99, in Google Books.

¹³⁷ “Authorities on Cholera,” *British and Foreign Medico-Chirurgical Review* 83 (1866): 141, 153, in Google Books.

viewed cholera as contagious, but less contagious than diseases such as smallpox.¹³⁸ The question of propagation was a contested one, at least in the details, but the idea that cholera could spread from person to person gained much ground between 1854 and 1866.

One significant change that occurred with the question of infection was the idea of disease specificity, as many physicians characterized cholera as a “specific poison” that could enter the body and work much as known poisons.¹³⁹ This raised a new set of issues that had not applied when cholera was believed to originate from local miasmas. The Board of Health had proclaimed in 1848 that cholera was filth, which suggests that it was not a specific disease. Dr. Sutherland, however, who had published opinions of the Board in 1848-9, changed his mind in 1867, declaring that cholera was not necessarily related directly to filth, as “cholera is not invariably *en rapport* either with other zymotic diseases or with mere physical local characteristics.”¹⁴⁰ While this may seem somewhat obvious, the idea of specificity of disease was a profound step in the understanding of its etiology, probably a necessary one for the later adoption of the germ theory. Such ideas gave some hope to physicians attempting to check its spread. If cholera was a specific poison, it could be contained in one place, logic that formed the underpinnings of disinfection and neoquarantinism. One physician even argued that an antidote might exist.¹⁴¹

Another significant difference from 1849 was the recognition that the waste from infected people was a reason for its spread, although debates existed over whether this was the primary

¹³⁸ Hayden and Cruise, quoted in *British and Foreign Medico-Chirurgical Review* vol. 40 (1867), 263, in Google Books.

¹³⁹ C. Dudley Kingsford, *Cholera: A New Theory* (London: John Churchill and Sons, 1866), 11, in Cholera Online: <http://www.nlm.nih.gov/exhibition/cholera/>; Charles Henry Marston, *Cholera; Its Causes, Prevention, and Treatment* (Devises: C. Gillman, 1866), 5, in Cholera Online: <http://nlm.nih.gov/exhibition/cholera/>.

¹⁴⁰ “Fatality of Cholera Epidemics in London,” *The Lancet* 89.2265 (1867): 125.

¹⁴¹ Kingsford, *New Theory*, 11.

method of infection.¹⁴² This helped to explain why some people who came in contact with cholera patients sickened, and others remained healthy; only contact with their “poisoned excretions” was dangerous.¹⁴³ Physicians cited dirty hands of medical workers, tainted bedding and clothing, and unsafe disposal of cholera waste, particularly if the water-closets emptied into areas where it could spread. The danger did not end when the fluids of patients dried, as cholera could enter the lungs through a vapor or as dry germs.¹⁴⁴ Such fears helped prompt the *Sewage Utilization Act* of 1866, which created sewer authorities and enabled them to establish drainage systems in their districts.¹⁴⁵

As John Snow had demonstrated in 1854, water was a frequent culprit in the spread of cholera. Thus, many physicians recognized the need for pure drinking water and non-contaminated food.¹⁴⁶ Physicians could, and many did, trace the spread of disease along rivers, particularly polluted ones. One physician pointed to the Indian practice of letting the dead decompose in rivers as a primary means of its spread in that region.¹⁴⁷ The *Lancet* referred to water as the “one agent of diffusion which has outstripped all others in importance,” arguing that decreased mortality in 1866 owed much to greater care with the water supply.¹⁴⁸ One American physician noted that the poor quality of the East London Company’s water led to that district suffering disproportionately from the rest of London— from thirty-two to forty times greater.¹⁴⁹

The official report of the epidemic found that this was because the quality of the rest of the city’s

¹⁴² Physicians’ views often depended on whether they agreed with Snow or Pettenkofer. While Snow believed that cholera “effluvia” were inherently dangerous, Pettenkofer argued that it needed to ferment underground before it became dangerous. Considering that the water supply where this fermentation would take place was underground, though, it was often a moot point when the water was infected, and this did not seem to cause a great rift in the profession.

¹⁴³ Marston, *Causes*, 6.

¹⁴⁴ Joseph Kidd, *Directions for the Homeopathic Treatment of Cholera* (London: E. Gould & Sons, 1866), 7, in Cholera Online: <http://www.nlm.nih.gov/exhibition/cholera/>; Marston, *Causes*, 6.

¹⁴⁵ W.H. Michael, *The Sanitary Acts*, 16-17.

¹⁴⁶ Kidd, *Directions*, 8-9.

¹⁴⁷ Kingsford, *New Theory*, 2.

¹⁴⁸ “Untitled,” *The Lancet* 88.2261 (1866): 727-8.

¹⁴⁹ Peters, *Notes on the Origin*, 182-3.

water had been improving since 1848. When the water in East London remained contaminated, it stuck out as obvious. In fact, the Report gives a significant amount of space to discussions of water, indicating its importance to sanitary authorities.¹⁵⁰ Water quality was one of the most important concerns in 1866, as the British government began taking steps to ensure that customers received clean water.

Lingering Older Ideas

The idea that cholera required filth to wreak havoc was hard for many physicians to dispel, even if they viewed it as contagious. Many argued that while cholera might be a specific disease, it required predisposing causes to strike. Decomposition of organic matter, filth, and immorality could be dangerous, according to some physicians, causing people to be more vulnerable to the disease. One physician claimed that cholera, spread by a poisoned miasma, was “powerless in the absence of organic impurity,” and could result from intemperance, unhealthy lifestyles, and lack of ventilation.¹⁵¹ Excess and intemperance were predisposing causes for the wealthy who fell victim to cholera; filth and lack of food or healthy environments condemned the poor. Many physicians pointed to dampness and decomposition of organic matter, which either directly led to cholera, through food or water, or created a poisoned miasma that then spread the disease. Pollution and nuisances, particularly those of animals, could be deadly, and the idea that cholera followed the track of fevers, in dirty places, remained somewhat popular.¹⁵² A minority of reactionary authorities refused to see water as a possible cause of

¹⁵⁰ Farr, Edwin, “Rise and Decline of Cholera,” *Report on the Cholera Epidemic of 1866 in England*, (London: Eyre and Spottiswoode, 1868), xxxi, in Google Books.

¹⁵¹ Marston, *Causes*, 5.

¹⁵² Thomas Orton, *Board of Works for the Limehouse District. Special Report Upon the Cholera Epidemic of 1866* (London, 1866), 4-5, 7, 12-15, in Cholera Online: <http://nlm.nih.gov/exhibition/cholera/>; Robert J. Spitta, *Brief remarks on cholera; being the result of observations during the two last outbreaks of cholera in England, and an attempt to advance a theory of that disease which shall lead to a more consistent method of treatment* (London: J. Churchill & Sons, 1866), 4-5, 12-14, in Cholera Online: <http://nlm.nih.gov/exhibition/cholera/>; Ambrose Blacklock,

cholera. The Medical Officer of Health in the Limehouse District declared that his chemist could not find any poison in the water and that most people did not see water as dangerous, although it is clear from other sources that most physicians did see water as capable of spreading cholera.¹⁵³

It is significant that many physicians who ascribed to the theory of predisposing conditions were still miasmatisers. While they recognized that there might be a specific poison, they thought it spread in the air, a concept that was not very different from the original miasmatisers. To the physicians who believed in predisposing conditions, filth in general was as much of a problem as the presence of the cholera poison, if not more. One physician wrote that in filthy places, “cholera works its greatest mischief; and we have ourselves to blame when such places exist.”¹⁵⁴ Such physicians could not believe that a filthy place without the cholera germ could be less dangerous than a clean location with the germ—admittedly, a contradictory concept, and one that held interesting implications for sanitary reform.

Indeed, some physicians refused to see cholera as contagious or infectious at all, denying the existence of a poison. One anti-contagionist argued that the poison “exists only in the imagination of certain pathologists” and that “germs” were no more real than the poison. He was, understandably, horrified at the return of quarantine.¹⁵⁵ Thus, while most physicians agreed with Snow and Pettenkofer by 1866, this was not the case for all physicians, as a minority held to older ideas that encompassed both moral arguments and broader ideas of environmental causes. Authorities in health policy effectively sided with the contagionists, and while older ideas continued to circulate, they played less of a role in sanitary reform.

Do Small-pox and Cow-pox Afford Any Protection from Asiatic Cholera? (Dumfries: W.C. Craw, 1866), 15, in Cholera Online: <http://www.nlm.nih.gov/exhibition/cholera/>; Kingsford, *New Theory*, 15.

¹⁵³ Orton, *Limehouse District*, 3-6.

¹⁵⁴ Blacklock, *Small-pox*, 15.

¹⁵⁵ John Chapman and Andrew Clark, *Cholera: A Disease of the Nervous System* (London: J&A Churchill, 1866), 7-8, in Cholera Online: <http://www.nlm.nih.gov/exhibition/cholera/>.

New Technology: Neoquarantism, Disinfection, and Modified Sanitationism

The abolishment of the General Board of Health, partly due to Chadwick's unpopularity, occurred in 1854, opening up British public health to a new generation of ideas. John Snow's view of cholera as infectious flew directly in the face of the original Board's strict anti-contagionism, but official policy shifted after 1849, as it became clear that many of Chadwick's ideas, such as flushing sewers into the Thames (which then became drinking water) actually worsened the problem. The Great Stench of 1858 proved that contrary to the Board's platitude, all smell was *not* disease. London was overwhelmed with the pungent smell of the Thames but suffered no increase in deaths, providing strong evidence that something other than smell was to blame for cholera's spread. After this incident forced members of Parliament to evacuate, they dispatched Joseph Bazalgette to create a modern sewer system. One of the final nails in the coffin of Chadwick's anti-contagionism was Registrar-General Edwin Farr's demonstration that cases of cholera could be traced to infected water from one water company.¹⁵⁶

Thus, in 1866, public health operated under a very different paradigm than it had in 1848. John Simon, the Medical Officer of Health, was a physician and ran the public health system in a much less bureaucratic manner than Chadwick, making him inherently less of a controversial figure. Departing substantially from his predecessor, both in leadership style and prophylactic ideas, Dr. Simon championed a combination of "neoquarantism" and modified sanitationism that focused mainly on disinfection. Dr. Simon was not in favor of traditional quarantines. He pointed out that they had serious economic drawbacks, if implemented properly, which was hard to do, and effective quarantine was "more easily imagined than realized."¹⁵⁷ Neoquarantism was more palatable for many British because it differed significantly from previous quarantine

¹⁵⁶ Baldwin, *Contagion*, 148-9; Porter, *Greatest Benefit*, 413. This is notable because Farr had originally been opposed to Snow's ideas.

¹⁵⁷ "The International Sanitary Congress," *The Lancet* 88.2259 (1866): 394.

methods: it was more precise and therefore more effective. As one historian points out, such methods were “calibrated to the actual mode of transmission rather than taking blunderbuss aim at every distasteful metropolitan odor.”¹⁵⁸ Rather than attempting to keep all foreigners from entering, neoquarantinism involved careful inspection of ships and observation of travelers, particularly those likely to have been exposed. The sick were isolated quickly, and all who could be suspected of harboring cholera germs were disinfected, with their clothing and luggage subject to the same procedures.¹⁵⁹ Disinfection also took place in neighborhoods where cholera was present or suspected, rather than in the city as a whole. Such strategies owed much to Snow and Pettenkofer’s work, as they assumed that cholera was a physical body that could be destroyed by disinfection. In a sense, disinfection was a short-term solution, before broader sanitary reform could take place, but it did not replace sanitary reform. It merely represented a different set of priorities than existed under Chadwick’s administration.¹⁶⁰

The ability to carry out disinfection and neoquarantinism, in addition to public works projects addressing water and nuisances, necessitated powerful infrastructure. While the beginning of such authority was evident in 1849, the achievements made by physicians and health authorities would not have been possible without the powers granted in the *Sanitary Act* of 1866. This act granted health authorities significant power: the ability to regulate tenements, give clean water, detain infected travelers, isolate the ill without their consent, enter houses and forcibly remove nuisances, disinfect or destroy infected items (particularly clothing and bedding) and remove corpses from buildings, among other provisions. It also required nuisance authorities to inspect their districts and provided penalties for infected people knowingly exposing others to

¹⁵⁸ Baldwin, *Contagionism*, 147.

¹⁵⁹ Many writers of the time do indeed use the word “germ,” but their understanding of the concept differs from ours, as the germ theory had yet to be advanced.

¹⁶⁰ Baldwin, *Contagionism*, 141-3, 147-9; Porter, *Greatest Benefit*, 411-414.

disease.¹⁶¹ The success of health authorities depended both on knowledge of measures to take against cholera and support to carry out intrusive yet necessary duties, and the Act gave Dr. Simon much more authority than Chadwick had possessed.

General Sanitary Success

These new ideas and strategies, bolstered by strong infrastructure, did lead to more success with cholera prophylaxis than ever before. By the second wave of the epidemic in 1867, the combination of traditional sanitationism, disinfection, and concern for affected water supplies led to reports of success in many districts. The officer of health in the Islington parish earned praise for saving his district from excess mortality, at his own risk.¹⁶² The district of Lambeth remained an island of relative health in the East End by taking precautionary measures: making available more physicians and medicine, removing nuisances, draining cesspools, disinfecting areas, and destroying affected clothing and bedding. Cooperation between physicians and health authorities improved the efficiency of such steps, a stark contrast between the power struggles of 1849. In addition, the health officials took action when they discovered that their water was contaminated, which probably saved more lives than the other methods.¹⁶³ The borough of Hackney reported significant progress from hiring more nuisance inspectors, who had the power to inspect, disinfect and carry out legal action against offenders if necessary. Health authorities usually addressed about 1,500 nuisances yearly, but from August 1866 to March 1867, they dealt with 4,285 cases- a vast improvement of public health infrastructure.¹⁶⁴ In addition, districts

¹⁶¹ Baldwin, *Contagionism*, 152-3, 185; Porter, *Greatest Benefit*, 414; W.H. Michael, *The Sanitary Acts: Comprising the Sewage Utilization Act, 1865, and the Sanitary Act, 1866* (London: H. Sweet, 1867), 18-26, in Google Books

¹⁶² "Islington Sanitary Committee," *The Lancet* 89.2262 (1867): 22.

¹⁶³ "Prevention Better than Cure," *The Lancet* 90.2310 (1867): 713.

¹⁶⁴ "The Sanitary Act in Hackney," *The Lancet* 90.2290 (1867): 80.

with particularly bad conditions were likely to be called out by the *Lancet*, illustrating the extent to which sanitary achievement, at least to some degree, was the norm.¹⁶⁵

Reports to Sanitary Committees in various districts illustrate the extent to which physicians believed that effective action significantly curtailed the epidemic. In the vestry of St. Mary, Newington, physicians reported cases of cholera, and health officers made medicine and disinfectant freely available. This serves as another example of cooperation between the two groups enhancing the ability of authorities to act effectively. In addition, bills of sanitary advice were distributed in poor districts and medicine was made available in schools for poor children. However, health officials dealt with all nuisances, not only those of the poor. The Medical Officer of Health, William Tiffin Iliff, declared that “strict impartiality [was] the rule of action,” as “all classes, and those in every station, [were] alike subject to inquiry.”¹⁶⁶ Widespread sanitary efforts took place throughout the parish, as workers cleaned roads, removed handles from street pumps, and quickly interred the dead. Leaders minimized infected water supplies caused by sewer construction as much as possible. Health workers visited 12,919 houses, keeping a record of nuisances of every house and what had been done to address them; they re-inspected buildings until they were clean, some multiple times. Ultimately, the parish suffered much less severe of an epidemic in 1866 than 1854 and 1849, with only 24 cases, compared to 907 in 1849 and 694 in 1854.¹⁶⁷

Thanks to these measures, physicians viewed London as more successful than ever before. One American physician spoke admiringly of the support given to health officers and progress made in home visitations, disinfection, isolation, and water quality. He said that 14,137

¹⁶⁵ “The Cholera in the Workhouses,” *The Lancet* 88.2239 (1866): 100.

¹⁶⁶ William Tiffin Iliff, *To the Special Sanitary Committee of the Vestry of St. Mary, Newington* (Newington, 1866), 9, in Cholera Online: <http://www.nlm.nih.gov/exhibition/cholera/>.

¹⁶⁷ *Ibid.*, 1-14.

died in 1849, 10,738 in 1854, and only 5,548 in 1866, 3,909 of which occurred in the troubled East End area.¹⁶⁸ While obviously differences in the relative strengths of epidemics account for some mortality figures, the death rate in 1866 is significantly lower than the other years. The *Lancet* credited this to the new sanitary technologies in place since 1855.¹⁶⁹ The new technology was undoubtedly influential, but it is not the only reason that many of London's authorities perceived, and arguably had, much greater success than in 1849. The use of sanitary infrastructure to undertake targeted interventions, as discussed, was crucial to the British strategy. Also notable was evidence of cooperation between health boards and physicians, as physicians participated in sanitary efforts and helped to strengthen the efforts of Simon's administration. The reports from Lambeth and St. Mary explicitly point out that the system of sanitationism now involved physicians, who were more supportive of official responses than in 1849.¹⁷⁰

The epidemic of 1866 was not entirely a success story, as one might guess, as problems remained in some districts. While procedures were in place to deal with nuisances, this did not always take place, as it required dedicated sanitary authorities. In the borough of Woolwich, the medical officers had made no headway in sanitary matters between 1854 and 1866. They cemented the ire of local physicians by hiring a ship captain's servant as sanitary inspector and a man who claimed to have, but could not produce, medical credentials as his assistant. A local physician complained to the *Lancet* that these officers were shirking their duties and exacerbating the problem of cholera, particularly by neglecting to disinfect the homes of certain

¹⁶⁸ John Charles Peters, *Notes on the Origin, Nature, Prevention, and Treatment of Asiatic Cholera* (New York: D. Van Nostrand, 1867), 182-3, in Cholera Online: <http://nlm.nih.gov/exhibition/cholera/>.

¹⁶⁹ "The Health History of 1866," *The Lancet* 89.2262 (1867): 18.

¹⁷⁰ Tiffin Iliff, *Newington*, 9; "Prevention Better than Cure," 713.

victims.¹⁷¹ In this situation, there is clearly no cooperation between physicians and the medical officers, as the health authorities antagonized physicians by appointing lay-people in positions of authority over them. In addition, there is no evidence of sanitary infrastructure in use, as these dubious officers accomplished nothing of note.

At the end of the epidemic, even where authorities had made progress, nuisances remained, many impoverished people still lived in filth, and the water supply was not yet safe.¹⁷² When cholera was not threatening, such measures lacked urgency. An early 1867 *Lancet* article was already complaining that many promises of continuing sanitary progress were “cast to the winds and utterly forgotten.”¹⁷³ In addition, problems with the water supply, a huge concern, would take years to remedy entirely. This was dependent on the completion of Joseph Bazalgette’s new sewer system, as construction caused some unavoidable problems with the water supply.¹⁷⁴ Another issue that dragged out the problem of water quality was corruption of the water companies. Even though most of the city’s companies had improved by 1867, an investigation into the water in East London found eels in people’s homes—hardly a sign that the company was diligently watching the quality of its water.¹⁷⁵ Prophylactic measures were not always immediately adequate to address larger problems that would take decades to complete, such as the sewers, or require the compliance of private companies.

Overall, despite failures in some districts, London’s experience in 1866 was more positive than in any previous cholera epidemic, as neoquarantinism, disinfection, and a concern for infected water revolutionized prophylaxis. Sanitary infrastructure and cooperation between

¹⁷¹ “The Outbreak of Cholera at Woolwich,” *The Lancet* 88.2259 (1866): 683.

¹⁷² Tiffin Iliff, *Newington*, 13.

¹⁷³ “Untitled,” *The Lancet* 90.2304 (1867): 524-5.

¹⁷⁴ Tiffin Iliff, *Newington*, 9.

¹⁷⁵ General Registrar Office, *Annual report of the registrar-general of births, deaths, and marriages in England* (London: Eyre and Spottiswoode, 1868), xxv. This is the district which suffered the highest mortality in the city.

health authorities and physicians aided these developments. The *Lancet* proudly declared at the end of the epidemic that cholera “came not unanticipated, and, although it has found too many victims, it never found so much effective resistance awaiting it.”¹⁷⁶ In the same vein, one American physician declared that British “sanitary science fought against it as it had never fought before.”¹⁷⁷ It is no accident that this is the language of a besieged city finally (at least somewhat) triumphant; while sanitary reformers had not yet won the war, they seemed finally to have won a battle. There were obviously still problems and excess mortality, but progress was clear to physicians: when properly carried out, these new methods worked. Unlike in 1832, when panic reigned, and in 1849, when Chadwick’s efforts fell short and created more problems in the meantime, these solutions functioned in the short term. Targeted sanitary reform allowed health authorities to work with the resources they had and effectively target cholera specifically. While many still died from cholera in London in 1866, authorities now had tools that they could rely on in future epidemics.

Better Relationships Between Physicians and Health Authorities

One notable aspect of the 1866 epidemic was that, in most cases, there was greater cooperation between health authorities and physicians. They seemed to be fighting for the same goal rather than against each other, as in 1849. Physicians gained more authority in public health measures, which made them supportive of the system in place. Many particularly liked the *Sanitary Act* of 1866, which they perceived as empowering. The *Lancet* pointed out to physicians the “imperative duty which rests upon them to avail themselves at once of the opportunity now afforded them of assuming their rightful place as conservators of the public health.” It argued that the act conferred “powers which will enable the medical men of any town

¹⁷⁶ *The Lancet*, 88.2261 (1866): 727-8.

¹⁷⁷ Peters, *Notes*, 182-3.

or district in the kingdom, by concerted action, to remove at once the principal sources of preventable disease.”¹⁷⁸ This statement indicates that physicians saw themselves as the rightful leaders of public health and were gratified when Parliament agreed. The reports from health authorities, as discussed above, indicate that this was not merely the perception of physicians; they did actually participate much more in public health than they had in 1849. Sanitary success also stroked the profession’s ego, as the public began to pay more attention to such measures when they were proven effective. In 1867, the *Lancet* declared its joy that its interest in public health had spread to the general public.¹⁷⁹

Much of this cooperation relates to a generally positive relationship with John Simon, the Medical Officer of Health. Physicians preferred Simon to Chadwick, as evidence of criticism of him is difficult to locate. Support for Simon existed before the epidemic and did not waver.¹⁸⁰ One *Lancet* article declared that the sanitary advisements published by the Medical Officers of Health in London proved that “the public health in London is in good medical hands.” In an obvious indictment of Chadwick, the editorialist continues to say that, “This has not always been the case,” as in previous epidemics, “the highest public sanitary authorities and the highest medical authorities were at unseemly issue on vital points of procedure.”¹⁸¹ Criticism about Simon and his policies is nowhere to be found in the *Lancet*, which had no qualms about discussing Chadwick’s failures in 1849. Disapproval of local sanitary leaders was another matter; as previously discussed, the journal seemed to consider it part of its duty to indict authorities not seen as effective. For instance, one article scoffed at the “‘cheese-paring’ and

¹⁷⁸ “Untitled,” *The Lancet* 88.2242 (1866): 187.

¹⁷⁹ “The Public Health,” *The Lancet* 89.2267 (1867): 188.

¹⁸⁰ None of the *Lancet* articles I read said anything critical about Simon, even after I looked at every article that mentioned his name. It is possible that criticism occurred elsewhere, but it does not at all seem to be the case that he was widely disliked, like Chadwick.

¹⁸¹ “United Action in Case of Cholera,” *The Lancet* 2232.9 (1866): 637.

apathetic element of metropolitan boards and vestries” that waited until cholera was impending to take action.¹⁸² Such statements are hardly surprising, considering the inherent corruptibility and inefficiency of local governments.

What is notable, particularly considering the squabbling of 1849, is the lack of complaint about the public health system in general, as the overall health authorities seem to have been very well-liked by the medical profession. This is probably because of the greater autonomy bestowed upon physicians through legislation such as the *Sanitary Act*, which allowed them to participate in official efforts and claim public health as their own. Also, unlike Chadwick, Simon did not attempt to control the profession and allowed medical personnel to take credit for sanitary successes, which obviously strengthened his relationship with them. Overall, the tension between health boards and physicians in 1849 was not evident in 1866. While physicians often pointed out where failures of public health had occurred, they criticized specific places where the system had failed— not the structure of the system in general.

Conclusion

Dramatic shifts in the theory and implementation of prophylactic methods made it possible for health authorities to become, arguably, much more successful at preventing cholera in 1866 than in 1849. Contagionism replaced miasmatism as the dominant theory, which ushered in an era of neoquarantinism, disinfection, and much more concern for water and sewage. This concept was persuasive because it possessed the explanatory power of miasmatism, but produced better results than early sanitationism had. To implement these ideas, health authorities relied on the sanitary infrastructure begun in 1849 but expanded it to fit newly targeted goals. Physicians and health authorities cooperated to a much greater degree than in 1849, essentially serving as a more united front against cholera rather than bickering. The

¹⁸² “Untitled,” *The Lancet* 90.2304 (1867): 524-5.

medical profession felt more empowered as health authorities, probably thanks to Chadwick's absence, and John Simon's administration faced much less criticism. Although cholera had not yet been defeated, the British in 1866 believed that they had found the tools to do so in the future.

America

The unpleasant sanitary condition of the United States at the beginning of 1866 was obvious to everyone's eyes- and noses. Reformers decried the filthy nature of cities and the lack of action that had taken place since the last visitations of cholera. In New York, the health board was ineffective, as few sanitary improvements had been made, and none seemed likely to occur in the near future. After political struggles stymied efforts to strengthen the municipal health system, state leaders passed the *Act to Create a Metropolitan Sanitary District and the Board of Health Therein*, which gave expansive powers to the new bodies. The new Board proved to be efficient, establishing a system where physicians' reports of cholera led to a swarm of inspectors who disinfected the premises. While public pressure and a hostile judiciary minimized the role of quarantine, health authorities were surprisingly effective. It was a relatively mild epidemic, and the new officials dealt effectively with the threat of cholera- a momentous achievement, considering past failures. Charles Rosenberg says, "For the first time, an American community had successfully organized itself to conquer an epidemic."¹⁸³

As in Britain, this sanitary success was partly the result of new ideas about cholera's propagation and partly because of improvements in sanitary infrastructure and relationships between physicians and health authorities. The ideas of Snow and Pettenkofer were influential, and contagionism was the predominant theory by 1866, with a minority of dissenters remaining. New tools, such as disinfection and neoquarantinism, proved relatively successful at checking

¹⁸³ Rosenberg, *Cholera Years*, 192-3.

cholera's spread. After watching New York's success, physicians in other cities tried to mimic the powerful sanitary infrastructure and the tools of disinfection that had proven so much more effective than past efforts. During this period, while successful cities exhibited harmony between physicians and authorities, physicians who felt left out by incompetent Boards of Health were often harshly critical of them. In addition, as more authority was at stake, hostilities with alternative practitioners continued to be problematic in certain areas.¹⁸⁴ A lack of unified national policy meant that there was wide variation in the actions of various cities. In New York and Philadelphia, where authorities and physicians cooperated and used sanitary infrastructure to carry out disinfection, prophylactic efforts were apparently effective. Not all cities were so fortunate, as some lacked the infrastructure or the cooperation to prevent cholera successfully.

Etiology

In 1866, many physicians agreed with Snow and Pettenkofer that cholera was contagious, infectious, or somehow propagated by human interaction. In a Congressional hearing, one physician declared the medical profession to be unanimous in its support of contagion, which does not seem to be quite true, but it indicates that it was a widespread belief.¹⁸⁵ The idea of contagion or infection encompassed a wide variety of views. Some physicians, following the ideas of Pettenkofer, thought that cholera became contagious after the germ fermented underground in "certain conditions favorable to its development."¹⁸⁶ Others viewed it as immediately infectious and contagious.¹⁸⁷ Many physicians viewed cholera as a physical particle, much like a poison. One Springfield physician wrote that filth was not cholera "any more than

¹⁸⁴ Rosenberg, *Cholera Years*, 186-209, 224; Duffy, *Sanitationists*, 118-125.

¹⁸⁵ John Evans, *Memorial of Dr. John Evans, praying the establishment of a system of quarantine regulations for the prevention of the spread of cholera. 39th Congress, 1st session, Senate Mis. Doc. No. 66, Feb., 1866* (Washington: Government Printing Office, 1866), 1-2, in Cholera Online: <http://www.nlm.nih.gov/exhibition/cholera/>.

¹⁸⁶ Dr. Lee, in Evans, *Memorial*, 11-12.

¹⁸⁷ John Charles Peters, *Notes on the Origin, Nature, Prevention, and Treatment of Asiatic Cholera* (New York: D. Van Nostrand, 1867), 164, in Cholera Online: <http://nlm.nih.gov/exhibition/cholera/>.

guano is a cabbage,” but dirty environments were “good fertilizers when the seed is scattered.”¹⁸⁸ Other writers were more vague, alluding to a “morbific influence” that spread from person to person. One physician wrote that cholera did not seek out or originate in filth, but “when the morbific influence rests upon a country,” people in such conditions were more likely to die, as they tended to be in worse health.¹⁸⁹ The idea of human intercourse also played a significant role in the debate. It was clear to some that along the Mississippi River, places where steamboats stopped were the most likely to contract cholera. In addition, in Chicago, cholera’s spread was linked with “the amount and rapidity of human intercourse.”¹⁹⁰ Contagionism in 1866 was a popular idea, but one whose details could differ dramatically between physicians.

As in 1849, many physicians believed in combinations of theories that were not easily characterized as “contagionist” or “anti-contagionist.” Many physicians hedged their bets by claiming that while cholera was not contagious, it was slightly portable, which allowed them to occupy the theoretical space between contagionism and anti-contagionism. One argument was that it was infectious, spread by fomites, but not contagious because not directly communicated. Harkening back to the animalcular theory of 1849, several physicians saw cholera as a live parasite that could function as a poison inside the body.¹⁹¹ Some claimed that cholera was contagious in some instances and not in others, such as the idea of contingent contagion. One physician declared cholera infectious, and “communicable by human intercourse,” though not

¹⁸⁸ Marshall Calkins, *Essays on the preventable diseases of summer and autumn: No. 1. epidemic cholera, its causes, phenomena, and mode of propagation; together with the means of prevention and proper treatment* (Springfield: Bickford & Bullock, 1866), 7, in Cholera Online: <http://nlm.nih.gov/exhibition/cholera/>; Benjamin Eddy Cotting, *Cholera, Its Management and Medical Treatment* (Boston, 1866), 5, in Cholera Online: <http://www.nlm.nih.gov/exhibition/cholera/>.

¹⁸⁹ Cotting, *Management and Medical Treatment*, 3-5

¹⁹⁰ Evans, *Memorial*, 4,6.

¹⁹¹ Henry Hartshorne, *Cholera, Facts and Conclusions as to its Nature, Prevention, and Treatment* (Philadelphia: J.B. Lippincott & co, 1866), 4, 35, 41-43, 46, in Cholera Online: <http://nlm.nih.gov/exhibition/cholera/>; William Schmoele, *An Essay on the Cause, Diffusion, Localization, Prevention and Cure of the Asiatic Cholera and Other Epidemics* (Philadelphia: WM Zieber, King & Baird, 1866), 17-20, in Cholera Online: <http://www.nlm.nih.gov/exhibition/cholera/>.

communicable under all circumstances.¹⁹² These physicians would support disinfection, as they believed it could be spread in some circumstances, but were likely to view nuisance removal as important because cholera was more dangerous in certain situations.

One of the primary ways that cholera “seeds” could reach people was through the waste of its victims, an idea suggested by Snow. The idea that cholera “dejections,” “discharges,” or “contagious effluvium,” could be dangerous helped to explain how many people contracted the disease in the first place.¹⁹³ However, it also raised the problem that clothing, bedding, and other items contaminated by victims could themselves spread the disease. Indeed, many who washed the clothing of victims and cleaned their rooms became sick, suggesting that they had encountered poisonous “fomites.” Because of this, many physicians (and health boards) recommended to disinfect things after victims touched them.¹⁹⁴ In addition to clothing, many physicians saw contaminated water as one of the main ways cholera waste could enter people’s bodies.¹⁹⁵ One physician, Dr. Peters, summed it up eloquently when he remarked, “It is idle to talk of unripe fruits, bad lemonade, of Jack's imprudence in exposing himself to the sun, and of his drunken habits, for one draught of this poison water will be more fatal than all of them combined.”¹⁹⁶ Because of these ideas, disinfecting or removing waste became important, as contact through clothing or water supplies could be deadly.

¹⁹² Hamlin, *Essays on the Cholera*, 6-7; Calkins, *Preventable Diseases*, 9.

¹⁹³ Horace Marshfield Paine, *Manual of Reference on Epidemic Cholera: Its Causes, Prevention, Symptoms, and Treatment* (Albany: Weed, Parsons, & Co., 1866), 12, in Cholera Online: <http://nlm.nih.gov/exhibition/cholera/>; Hartshorne, *Facts and Conclusions*, 22; Schmoele, *Essay on the Cause*, 22.

¹⁹⁴ Evans, *Memorial*, 10; *Annual Report of the Metropolitan Board of Health of the State of New York v.1* (New York, Appleton & Co., 1867), 55, in Google Books; Calkins, *Preventable Diseases*, 8-19.

¹⁹⁵ Hartshorne, *Facts and Conclusions*, 51; Paine, *Manual of Reference* 8; “Miscellanea,” *Western Journal of Medicine*, ed. Theophilus Parvin (1867): 50, in Google Books.

¹⁹⁶ Peters, *Notes on the Origin*, 169.

Lingering Ideas

Ideas of predisposing causes, environmental or personal causes that caused cholera to be more likely to spread, continued to be evident. Personal causes included intemperance and a lack of concern with one's health. One physician (notably, also a minister) wrote that "intemperance [is] the primary cause of cholera...directly, by the intemperance it produces, and indirectly, by the nuisances which so cluster in and about the habitations of its victims."¹⁹⁷ This view, like in 1849, was less popular in the medical field, but some continued to suggest it as a cause of cholera. More popular were environmental predisposing causes: circumstances such as decay, moisture, filth, and sewage served to explain the increased spread of cholera in some areas. Many of these physicians were miasmatisers, believing that decay created gases that sewers could release into the air, which was worsened by a lack of proper ventilation. Decay, sewage, and waste were said to strike "first those low, filthy, overcrowded places, where the predisposing and favoring causes most abound."¹⁹⁸ One physician noted that all cases of cholera in Boston occurred near a "pestiferous quagmire," of drainage, which was very dangerous.¹⁹⁹ In addition, in Chicago, one physician pointed out that out of 1500 cases of cholera, only 287 were U.S. born, which he attributes to the filthy nature of the foreign parts of the city.²⁰⁰ Thus, while cholera might be contagious, it was decidedly more contagious in some areas than others. These ideas served as a link between miasmatiser of the 1840s and the new concepts of transmissibility, as many physicians were not quite ready to believe that filth itself was not dangerous.

¹⁹⁷ Hamlin, *Essays on the Cholera*, 9.

¹⁹⁸ Paine, *Manual of Reference*, 4-6; Hartshorne, *Facts and Conclusions*, 47; Calkins, *Preventable Diseases*, 6; Lee, in Evans, *Memorial*, 11-12.

¹⁹⁹ Suffolk District Medical Society, *Report of a Committee on Asiatic Cholera in Boston and Vicinity During the Year 1866* (Boston: D. Clapp & Son, 1867), 6, in Cholera Online: <http://www.nlm.nih.gov/exhibition/cholera/>.

²⁰⁰ Nathan Smith Davis, *How Far Do the Facts Accompanying the Prevalence of Epidemic Cholera in Chicago, During the Summer and Autumn of 1866, Throw Light on the Etiology of That Disease?* (Chicago, 1867), 13-14, in Cholera Online: <http://www.nlm.nih.gov/exhibition/cholera/>.

Despite the popularity of Snow's theories, many physicians refused to believe that cholera was contagious or infectious at all. One physician detailed a series of experiments in which he attempted to give his dog cholera by varied (and noticeably inhumane) methods. He inserted the evacuations of cholera victims into the dog's food and water, injected it into its body, performed a tracheotomy and inserted it in its neck, and numerous other methods, none of which gave the dog cholera. This experiment led him to conclude that it was not possible to give a dog cholera. He thus found cholera discharges to be "perfectly innocuous" under these conditions and not poisonous. He cited other evidence in which physicians had various accidents but did not contract it, surmising that cholera was not contagious.²⁰¹ Many non-contagionist physicians were clearly miasmatisms, as their theories sound very similar to the ones from 1849. To one physician, cholera was a poison that entered through the lungs- essentially, the definition of a miasma.²⁰² Some argued that cholera could not spread outside of certain sanitary conditions, thus it could not be contagious; it originated in filthy places rather than merely spreading there easily.²⁰³ One Chicago physician wrote that there was no evidence for its communication into the city, as it struck damp, filthy places without any evident pattern of infection, which also suggests miasmatisms.²⁰⁴ Thus, while many physicians were swayed by the concept of contagion, as put forth by Snow and Pettenkofer, some remained skeptical, touting evidence that proved cholera non-infectious.

²⁰¹ Roberts Bartholow, *Observations, Pathological and Experimental, On Cholera; Being a Report to the Board of Health [Cincinnati], with an addendum* (Cincinnati: A. Moore, 1866), 9-13, in Cholera Online: <http://www.nlm.nih.gov/exhibition/cholera/>. His conclusions are dubious at times, such as when he declares that a dog vomited but did not actually have symptoms of cholera.

²⁰² Cyrus Hamlin, *Essays on the Cholera: Preparation for its Prevention and Cure by Dr. Cyrus Hamlin, of Constantinople, and Other Eminent Men, Who Treated the Cholera with Unparalleled Success in Europe and America in 1848, 1855, and 1865* (New York: American News Company, 1866), 18-19, in Cholera Online: <http://www.nlm.nih.gov/exhibition/cholera/>.

²⁰³ Smith Davis, *How Far Do the Facts*, 2, 19.

²⁰⁴ Smith Davis, *How Far Do the Facts*, 15.

Prophylactic Technology: Quarantines and Targeted Sanitationism/Disinfection

Quarantines enjoyed a resurgence in popularity between 1849 and 1866, with more physicians supportive of the concept. A minority of physicians dissented, arguing that quarantines could never be effective and that sanitationism alone could save people from cholera. One argument was that only “perfect non-intercourse” would prevent cholera from spreading from other U.S. cities, which would never be tolerated by the public. Thus, only sanitationism could realistically save people from cholera.²⁰⁵ To such physicians, quarantine was ineffective and dangerous to people and the economy, as it led to more deaths than it ever saved. In addition, it drained much-needed resources from sanitation and nuisance removal efforts.²⁰⁶ This position made sense when one considers the general failure of quarantines in past epidemics.

Many physicians disagreed, arguing that quarantines were a vital part of cholera prophylaxis, particularly if executed effectively. They asserted that previous health authorities had inadequately enforced them, rendering them “useless,” but stringent quarantines could serve a vital role.²⁰⁷ This gained much support from the idea that cholera spread by infected travelers, so quarantine could keep them out of the city by excluding them.²⁰⁸ Inherent in an effective system of quarantine was the notion that all cities were diligent about preventing the entry of cholera. Because Congress voted against a national quarantine, no uniform standard existed. One physician declared it “unnecessary” to point out “how far the introduction of the scourge would probably have been stayed,” if Congress had followed ideas “for a uniform, strict, extended, but liberal and humane national quarantine.”²⁰⁹ Many complained that proper

²⁰⁵ Lee, in Evans, *Memorial*, 13.

²⁰⁶ Hartshorne, *Facts and Conclusions*, 54, 60; Hamlin, *Essays on the Cholera*, 8.

²⁰⁷ Lee, in Evans, *Memorial*, 13.

²⁰⁸ Evans, *Memorial*, 1.

²⁰⁹ “Progress of the Cholera,” (*Philadelphia*) *Medical and Surgical Reporter* ed. Samuel Worcester Butler (1867): 124, in Google Books.

quarantines in cities such as New York City kept cholera at bay, but New Orleans' lack of quarantine caused it to spread over the entire country.²¹⁰

As in Britain, disinfection and modified sanitationism also became popular, particularly in New York City. The Board of Health attributed its success to disinfectants, stating that, "to the liberal use of disinfectants, the Metropolitan District is principally indebted for its comparative exemption from the epidemic."²¹¹ The success of these measures was widely publicized: one Chicago physician declared that even though authorities in that city had not been so effective, "we have learned that proper sanitary and hygienic measures are competent to deprive the cholera of its terrors."²¹² Thus, authorities agreed that the techniques in use by 1866 proved much more effective than the haphazard efforts in 1849. Realizing that most quarantines would eventually fail, health authorities began to advocate combining quarantines and sanitary efforts such as disinfection. The use of quarantines did not preclude sanitationism, as many pointed out the need for strict quarantine and sanitary regulation together.²¹³ Others argued that because there were hesitant quarantines, sanitary measures become necessary.²¹⁴ In addition, ideas of neoquarantinism are also evident in the debate, as some physicians argued that people should be sanitized and then set free, not held in quarantine facilities.²¹⁵

Cooperation and Infrastructure, and a Greater Perception of Success

The amount of power and motivation of health boards tended to vary between American cities, as no national health authorities existed to standardize methods of prophylaxis. Thus, cities were left to their own devices. Physicians and health authorities saw New York and

²¹⁰ Evans, *Memorial*, 1.

²¹¹ "Annual Report of the Metropolitan BOH of the State of New York," 56.

²¹² W.R. Marsh, "Report on Cholera in Chicago in 1866," *Chicago Medical Journal* 24 (1867): 293, in Google Books.

²¹³ Hartshorne, *Facts and Conclusions*, 56-7; Evans, *Memorial*, 1-2; Calkins, *Preventable Diseases*, 8-19.

²¹⁴ Peters, *Notes on the Origin*, 179-180; Lee, in Evans, *Memorial*, 13.

²¹⁵ Hartshorne, *Facts and Conclusions*, 61.

Philadelphia as relatively successful in defeating cholera, according to medical journals, treatises, and Board of Health reports.²¹⁶ Cincinnati, Chicago, and St. Louis were reputed to be some of the Northern cities hardest hit, as they had not taken the necessary precautions to prevent cholera's spread.²¹⁷ What the successful cities had in common was cooperation between the medical community and authorities and sanitary infrastructure that could carry out the new technologies. New York and Philadelphia both possessed dedicated health boards that were supported by the medical community and focused on new sanitary technologies: relatively effective quarantines (which bought authorities more time before cholera struck), systems for nuisance removal, and a willingness to use disinfectants freely. The relationship between the medical community and public health authorities and the infrastructure involved was crucial. Particularly important was that cases be reported and dealt with by authorities promptly. Physicians' hesitancy in reporting cases, lack of trust in health boards (sometimes for good reason) usually led to problems. Health authorities also needed systems for collecting information and acting on it. Without these, physician reports were relatively useless. Thus, the cities that managed to survive cholera epidemics with fewer deaths were those with cooperative physicians and public health authorities and sanitary infrastructure that could adequately carry out quarantines and disinfection.

New York

At the beginning of 1866, the city of New York was disgusting. Filth, nuisances, bad sewers, overcrowding, loose animals, and large cesspools dominated the city, and

²¹⁶ It is worth pointing out that not all cities were effective in dealing with cholera because not all had functioning health authorities. Those who did publish sanitary reports probably had infrastructure than most; cities who fared poorly because of a lack of health infrastructure were not likely to have done as much or collected as much information.

²¹⁷ "Cholera," (*Philadelphia*) *Medical and Surgical Reporter*, ed. Samuel Worcester Butler (1867): 284, in Google Books.

slaughterhouses and gas companies refused to cooperate with those who argued they were making the city sicker. The structure and upkeep of tenements was not conducive to health, as “the arrangement of water-closets or privies could hardly be worse if actually intended to produce disease.” Unconcerned managers, who had little stake in the health of their residents, oversaw buildings with unsafe privies and flooded basements. In addition, roads often had only surface gutters, with no connections to sewers, leading to cesspools and refuse collecting in the streets.²¹⁸ The wretched sanitary condition of the city, particularly poor districts, was attributed to lazy and corrupt health authorities. One member of the American Medical Association wrote that the Metropolitan District “had long been wretchedly misgoverned, and disease and death had held high carnival among the poorer classes of its inhabitants.”²¹⁹

Aware of the impending cholera epidemic, a citizens association asked for a sanitary survey of the city, which led to state legislation establishing a Board of Health and Sanitary Committee. This transformed the public health system in New York by instituting a body with more power in the face of the impending epidemic.²²⁰ This Board developed an elaborate system to minimize nuisances and mitigate the impact of cholera if it struck. Physicians and undertakers reported to the Board to keep an accurate tally of mortality statistics. Sanitary inspectors, physicians chosen to aid the Board, visited nearly every house in the city to check for nuisances. In addition, citizens could report nuisances themselves if sanitary inspectors did not catch them. Such measures were relatively successful in cleaning the city in a short span of time, which was

²¹⁸ “Annual Report of the Metropolitan BOH of the State of New York,” 38.

²¹⁹ Joseph Meredith Toner, American Medical Association, “Report of the Committee on Medical Literature,” *Transactions of the American Medical Association* (Philadelphia: Collins, 1867), 388, in Google Books.

²²⁰ “Annual Report of the Metropolitan BOH of the State of New York,” 50.

quite a daunting task.²²¹ Similar strategies were employed in Brooklyn, whose health authorities were also fairly successful at dealing with filth.²²²

If cholera did occur, well-coordinated teams sprung into action. Physicians reported cases to sanitary inspectors, who would load up a wagon and arrive on the scene quickly, usually within an hour, to aid the victim and disinfect the premises. In cases of known cholera, “disinfectants were promptly and freely used,” and many homes were checked twice to ensure that nothing dangerous remained. Sometimes fumigation became necessary in tenements, particularly those where cholera struck especially hard.²²³ Disinfection was an important concern for health authorities because they viewed it as cholera’s “true antidote,” which could dramatically reduce cases. A Disinfection Depot and Laboratory was established to test the efficacy of various disinfectants, indicating the extent to which sanitary authorities relied on them to keep the epidemic in check.²²⁴

However, not everyone approved of this new, powerful Board, and it faced significant opposition from many groups. For instance, the poor often resented intrusions into their lives, and did not willingly cooperate with all measures. In addition, some wealthy people attempted to limit its authority; one physician wrote that the Board of Health faced “selfishness and grasping avarice of multitudes of men who were engaged in occupations which were prejudicial to the public health, and who were unwilling to forego their gains.”²²⁵ Also frustrating was a judiciary that seemed outright hostile to the Board. In a particularly striking example, the Supreme Court refused to let authorities use Staten Island for quarantine, despite the desperate need for a quarantine site. Without such facilities, everyone was forced to remain on infected

²²¹ *Ibid.*, 22.

²²² *Ibid.*, 57.

²²³ *Ibid.*, Appendix A, 16-22.

²²⁴ *Ibid.*, Appendix A, 23, 28.

²²⁵ Toner, “American Medical Association,” 388.

vessels, causing the sick people to infect the healthy people on ships, who then died too.²²⁶ City health authorities were in constant battle with these groups, attempting to adequately clean the city, enforce quarantine, and sanitize areas where cholera had struck.

Ultimately, despite these factors, the Board was more successful in mitigating the spread of cholera than New York's authorities had ever been, according to a large number of physicians and health authorities. In 1866, only 600 people died of cholera in New York, compared with 3,527 in St. Louis.²²⁷ This was not only because the epidemic was milder than usual, although this probably played a small role, because it is clear that organized action did occur to stop the spread of cholera. The Board of Health publication at the end of the epidemic attributed much of their success to disinfection, declaring that medical officers had "full belief in the necessity and excellent results of means and methods of prevention and control."²²⁸ Such praise came from many other medical sources, indicating that the Board was not merely touting its own achievements. In an editorial, the *Philadelphia Medical and Surgical Reporter* praised the Board, noting the "energetic measures" taken to track cases of infection.²²⁹ One physician noted that New York officials isolated victims in a particularly efficient manner.²³⁰ It is clear that contemporary medical authorities viewed disinfection as a drastic improvement over the strategies implemented in 1848, one reason for New York's success. These technological improvements were facilitated by an increase in sanitary infrastructure that allowed authorities to check for nuisances, keep track of cases, and force disinfection when necessary. The Board

²²⁶ "Annual Report of the Metropolitan BOH of the State of New York," 54.

²²⁷ Peters, *Notes on the Origin*, 181.

²²⁸ "Annual Report of the Metropolitan BOH of the State of New York," 204.

²²⁹ "Progress of the Cholera," (*Philadelphia*) *Medical and Surgical Reporter* ed. Samuel Worcester Butler (Philadelphia: Alfred Martien, 1867), 202, in Google Books.

²³⁰ Peters, *Notes on the Origin*, 181.

possessed enough power to accomplish its goals despite opposition, which it had not been able to do in 1848.

In addition to these techniques, one of the most notable aspects of New York's ability to temper the epidemic was the evident cooperation between health authorities and the medical community. As shown above, physicians were involved with nearly every stage of the process: screening for nuisances, reporting cases, and disinfecting the premises. Whether or not it was a deliberate strategic move, the Board's show of respect for physicians involved them in cholera prophylaxis and made them part of the official response. After the beginning of the epidemic, when the new Board was in place, no criticism of the Board appeared in New York medical journals or texts, indicating physicians' sense of solidarity with the official health authorities. In addition, the Board credited its partnership with physicians for some of its success. The Annual Report of 1866 stated that the sanitary plan, put together "with the concerted action of a large body of physicians" indicated "not only of a judicious prevision on the part of the Board, but of the intelligence and philanthropy of the physicians and dispensary officers who so cordially entered into the plan."²³¹ Because they felt part of an effective system, physicians praised the Board rather than criticizing it, and the Board included them in its success. Collaboration between physicians and health authorities allowed the Board to establish the infrastructure necessary to achieve its goals.

Philadelphia

Philadelphia's health authorities also had success in mitigating cholera through sanitary measures, with only 900 deaths from cholera in 1866.²³² In 1866, the annual summer quarantines at the Lazaretto started a month earlier than usual in anticipation of cholera. Every

²³¹ "Annual Report of the Metropolitan BOH of the State of New York," 201.

²³² Henry Hartshorne, "The Prevention of Excessive Infantile Mortality," *Philadelphia Medical Times* 2 (1871): 474, in Google Books.

ship was checked, then disinfected and ventilated if cholera was suspected. Municipal authorities concentrated on eliminating nuisances, disinfecting where necessary, and ensuring a safe water supply. The Board of Health oversaw the improvement of the water supply through improvements to facilities after it was discovered that mortality in certain districts was much higher than the rest of the city. Burials were also an important concern; authorities convinced Army officials to bury Union soldiers outside the city, where they would be no threat to the public's health. At the end of 1866, when 910 cases of cholera were reported, health authorities considered the city cleaner than it had ever been and relatively successful at containing the epidemic.²³³

Philadelphia's health authorities and physicians attributed this success to the prophylactic strategies implemented by the Board of Health, with the assistance of physicians. The College of Physicians declared that, "it is undoubtedly in great measure owing to these well-timed exertions that we owe the comparative exemption of our city from what threatened to be fearful scourge."²³⁴ Echoing this sentiment, the Board quoted a local paper in arguing that there was "no doubt that this decrease in the mortality was owing entirely" to the sanitary efforts made by the Board and other citizens, presumably physicians.²³⁵ The College of Physicians of Philadelphia declared that the Board of Health made "great exertions" in sanitary reform, and physicians cooperated with them to report cases.²³⁶ While Philadelphia's Report gives much less detail than New York's, one can see evidence for the factors that caused New York to be successful. Both physicians and lay authorities compliment each other in their writings, and no

²³³ Philadelphia Board of Health, *Report of the Board of Health of the City and Port of Philadelphia* (Philadelphia: King and Baird, 1867), 1-17, in Google Books. Interestingly, this is one of only two mentions of the Civil War in my documents.

²³⁴ "Summary of Transactions of the College of Physicians of Philadelphia," *The American Journal of the Medical Sciences* 54 (1867): 134, in Google Books.

²³⁵ *Philadelphia Report*, 2.

²³⁶ "Summary of Transactions of the College of Physicians of Philadelphia," *The American Journal of the Medical Sciences* 54 (1867): 134, in Google Books.

suggestion of tension between the two exists. Physicians' diligence in reporting cases emphasizes that there was cooperation between the two groups. In addition, the Board's ability to complete ambitious projects relating to water quality, nuisance removal, and disinfection of victims indicates the presence of strong infrastructure. This combination of disinfectants, the infrastructure to employ them effectively, and a lack of fighting between physicians and medical authorities proved effective in Philadelphia, as in New York.

Failures

St. Louis

Some American cities lacked these characteristics and were unable to mount an effective stand against cholera. Without proper infrastructure or cooperative relationships between physicians and health authorities, cities were unlikely to be very successful in their attempts at prophylaxis. Unfortunately for its citizens, St. Louis represents a failure of nearly every rubric listed. There were no accurate reports of cholera mortality because the Board did not have the infrastructure to collect or publish this information. One physician said that, "the health machinery of the city is not in sufficient working order for obtaining data in any way reliable."²³⁷ Because of this, he estimated that the Board failed to report at least half of the cases in the city, which "shows how imperfect have been the arrangements of the Board for keeping the public accurately advised of the health of the city."²³⁸ This points to both a lack of cooperation with physicians, who could not report their cases, and a striking absence of infrastructure compared with other cities. If the Board could not accurately track the number of cases, it obviously could not apply disinfection at sites of outbreak, thus allowing cholera to spread unchecked. Larger projects such as nuisance removal and protecting water quality were out of the question, as they

²³⁷ "Progress of the Cholera," (*Philadelphia*) *Medical and Surgical Reporter* ed. Samuel Worcester Butler (Philadelphia: Alfred Martien, 1867): 202, in Google Books.

²³⁸ Ibid.

required greater organization and cooperation with the medical profession. Physicians in other cities used St. Louis as an example of a city with a very poor public health system, and sources estimated the mortality to be 3,527, a striking figure compared to what Philadelphia and New York reported.²³⁹

Chicago

Authorities in Chicago also performed dismally, leading to very high mortality rates from cholera. As in St. Louis, the Board lacked the means to track cases, and physicians did not cooperate with reporting them to authorities. Because of this, they could not establish accurate statistics, and the physician compiling the official statistics for the city's report thought that he should add 1,000 to the official total for it to be realistic. As in St. Louis, Chicago's health authorities exemplified a lack of cooperation and infrastructure, leading to many of the same problems. A Board that could not even record statistics was hardly capable of arresting an epidemic, as it lacked the infrastructure to act decisively. According to the *Chicago Medical Journal*, the Board had "not yet cut its canine teeth."²⁴⁰ Even the official sources acknowledged the grim reality of the Board's poor performance, blaming the medical profession as well. The author of the Official Report of the epidemic declared that, as "mortifying as it is to our self-love and to our anticipations of what we, as a profession, should find our ability to control the disease to be ... our progress may be, very nearly, represented by a zero" since the last epidemic. Citing 2,581 deaths from the epidemic, he declared cholera to be a "lamentable catastrophe" for the medical profession in Chicago.²⁴¹ Such high mortality rates in Chicago serve as convincing evidence that even if effective solutions existed, a lack of infrastructure and medical cooperation essentially doomed prophylactic efforts. By April 1867, authorities had recognized the need for

²³⁹ Peters, *Notes on the Origin*, 181.

²⁴⁰ "Loot," *Chicago Medical Journal* 24 (1867): 231, in Google Books.

²⁴¹ W.R. Marsh, "Report on Cholera in Chicago," 292.

reform and established a system of sanitary police, consisting of many former Army sanitarians, but this came too late to arrest cholera's progress.²⁴²

Professional Structure & Relationships

Physicians who felt that sanitary authorities were not accomplishing their purpose did not hesitate to make their voices heard. For instance, one physician in Cleveland argued that it was pointless to wait for the health authorities to take action, and people needed to sanitize their own properties if they intended to be safe.²⁴³ In addition, one physician in Springfield, Illinois claimed that lay-people had no place on Sanitary Committees and Boards of Health, which should consist entirely of physicians.²⁴⁴ In cities in which this was the case and sanitary authorities were physicians, such as New York, physicians were much less likely to raise much criticism than to praise sanitary authorities for their dedication. Thus, while criticism existed, it was much less prevalent than in 1849.

Alternative Practitioners

In addition to the tension between physicians and health authorities, one of the strongest rivalries in the medical profession was between homeopaths and allopaths. Regular physicians, "indignant at the attempt to give homeopathy an importance it had never before attained," claimed that homeopaths released fake statistics about their success with cholera and resented the claims they made as health authorities.²⁴⁵ One physician pointed out that homeopaths did not even use their own remedies in cholera, so they could not be trusted.²⁴⁶ A particular hotspot for this conflict was in New York, where homeopaths came close to exerting influence over the new

²⁴² "Editorial," *Chicago Medical Journal* 24 (1867): 217, in Google Books. This is the other mention of the Civil War.

²⁴³ A. Strickland, *Cholera, Its Symptoms and Treatment* (Cincinnati, 1866), 2, in Cholera Online: <http://www.nlm.nih.gov/exhibition/cholera/>.

²⁴⁴ Calkins, *Preventable Diseases*, 8-19

²⁴⁵ Medical Society of the State of New York, "Article 2," *Transactions of the Medical Society of the State of New York* (1867): 68, in Google Books.

²⁴⁶ Peters, *Notes on the Origin*, 194-9.

Board of Health. Allopathic physicians resented that they attempted to secure places on the Board of Health and in cholera hospitals, and even the Chairman of New York's Sanitary Committee declared that he "would not on his own responsibility trust them with a patient."²⁴⁷ One specific criticism was that homeopaths inflated their success rates with cholera, a tactic that was "nothing less than charlatanism."²⁴⁸ When one received hospital privileges in New York, he lost more patients than the allopathic physicians because he had little experience with cholera victims: he had previous success by treating not cholera, but cases of regular diarrhea.²⁴⁹ Although allopathic physicians eventually managed to retain control over the Board, they were not willing to cede the authority given by newly powerful health authorities.

Conclusion

In the United States in 1866, many physicians and health boards had greater success combating cholera, thanks to the new technology of disinfection, better sanitary infrastructure, and a growing sense of common purpose between physicians and health authorities.²⁵⁰ Cities that did not meet these criteria were much less effective in preventing the spread of the disease. The lack of a national system meant that the actions, and results, in cities varied dramatically. Many new ideas and strategies owed much to the growing consensus that cholera spread, in some way, by human contact, thanks to the work of Snow and Pettenkofer. Ultimately, despite failures in some cities, American sanitary authorities demonstrated that infrastructure, cooperation, and new techniques could be effective.

²⁴⁷ "New York State Medical Society," 42, 64, 66.

²⁴⁸ *Ibid.*, 413.

²⁴⁹ Peters, *Notes on the Origin*, 194-9; *Ibid.*, 43.

²⁵⁰ John Duffy argues that the primary reason for the development of sanitary infrastructure in the United States was the Civil War. I do not dispute that the Civil War helped sanitary authorities gain more experience, but I encountered only two explicit mentions of it in my sources, so I do not have enough information to comment about it.

Chapter 2 Conclusion

Better relationships with the medical community and strategies in the arsenal of public health helped both Britain and the United States fight cholera in a more effective manner in 1866 than 1848. Neoquarantinism and disinfection, relying on contagionist ideas, helped to better target cholera, rather than merely attacking all forms of dirt. As British authorities realized the long-term nature of sanitary reform, a fact that had become painfully obvious towards the end of Chadwick's tenure, targeted interventions became the primary method of focusing resources in the most effective way. American public health authorities, at least those who made progress against the epidemic, combined disinfection with a stronger reliance on neoquarantinism. Such improvements relied on sanitary infrastructure and good relationships between physicians and health authorities. A lack of division between the medical field and public health authorities allowed them to cooperate towards the same goal, a much more productive model than the bickering that had taken place in many instances in 1849. Successful cities followed these general principles and recognized early enough the need for a powerful system of health authority, but not all did, and those who did not had little success.

Paradoxically, since 1849, Americans found greater success when their municipal governments recognized the need for more centralization, while the British did so with less central authority. Inherent in these improvements was responsiveness to their mistakes in 1849, addressing what had failed but retaining the sanitary infrastructure that proved promising. Significant about this epidemic is that it established a way in which cholera prophylaxis could be effective, a feat that authorities had never before accomplished. Although not all cities managed this, and prevention was not perfect in any location, health authorities now had models of successful interventions that could be employed in later epidemics. In order to be effective in the

future, both the United Kingdom and the United States would need their new tools of disinfection and cooperation between public health officials and physicians. This process began, but was not completed, by 1867.

Conclusion

What Makes Public Health Interventions Successful?

The recurrences of cholera that struck Britain and the United States in the mid-nineteenth century represent some of the most famous epidemics in the history of public health, but this was not because authorities were incredibly successful in protecting people. The story of the progress of public health certainly does not end in 1866, as the developments here tell of a movement in its infancy. This era is significant because it serves as the first time that public health authorities reacted deliberately and with knowledge of how their theories could work, with reasonable evidence of effectiveness. Although their techniques would improve significantly in later years, particularly with the discovery of the cholera bacterium in the 1880s, public health authorities of the mid-nineteenth century planted the seeds for effective interventions that would revolutionize the way cities functioned. Because of the public health measures they championed, mortality rates in cities drastically declined by the early nineteenth century.²⁵¹

The popular image of cholera (and, to some extent, that of the scholarship) is one of scientific advancement, neatly encapsulated in the story of John Snow and the Broad Street pump.²⁵² Having traced the source of the 1854 epidemic in one London neighborhood to an infected water pump, Snow presented this information to authorities, who removed the handle and curtailed the epidemic. This vignette is powerful in its simplicity, as science triumphed over ignorance and illness to save Londoners from the fearful scourge of cholera. In such a scenario,

²⁵¹ Charts illustrating the declining death rates for diphtheria, tuberculosis, and smallpox are available in Judith Walzer Leavitt and Ronald L. Numbers, "Sickness and Health in America, An Overview," *Sickness and Health in America: Readings in the History of American Medicine and Public Health* (Wisconsin: University of Wisconsin Press, 1985), 6-9.

²⁵² Steven Johnson's 2006 book *The Ghost Map: The Story of London's Most Terrifying Epidemic--and how it Changed Science, Cities, and the Modern World* (Riverhead Books, 2006), while not exactly an example of academic history, is emblematic of this focus.

science is privileged over other factors, as it offers the possibility of a magic bullet against disease. Along with Snow, science is the hero of this story because it serves as the distinction between success and failure in prophylactic measures. If scientific knowledge is the distinction between success and the lack thereof, effective public health is an inevitable consequence of scientific development. However, a successful response to cholera did not necessarily result from this knowledge. After the dissemination of Snow's ideas, even cities aware of these developments failed to produce functioning systems of prophylaxis, particularly in the United States. Thus, science alone cannot explain the effectiveness of public health interventions. Arguing that it did not necessarily lead to success does not mean that it did not play a role, as the ideas of Snow and Max Pettenkofer obviously did have an impact. What this thesis aims to illustrate is that other factors were important, too: chiefly, infrastructure and cooperation between physicians and health authorities.

What does an effective public health intervention require?

The story of the development of effective interventions for cholera helps to illuminate wider principles behind what makes public health work. Examining what occurred when authorities were unsuccessful, and what changed in the intervening years, several specific principles come to light that explain what criteria must be met for a response to be effective. Chief among these are a plausible explanatory framework that leads to reasonably effective solutions, infrastructure, and a strong relationship between the medical community and competent health authorities. Such principles are applicable to more than just cholera and represent a rubric by which interventions can be analyzed.

In order to develop effective systems of prophylaxis, authorities must have an etiological framework that explains what causes a disease and suggests what sort of interventions would

prevent it. In 1848-9, miasmatism encouraged public health officials to remove nuisances that contributed to offensive smells in cities, which required massive efforts in filth removal, sewage, and water quality. While it is likely that these strategies would ultimately have made a difference in cholera mortality, they were not overly helpful in the short term, particularly when authorities had trouble implementing them to any large degree. Miasmatism, therefore, was a framework that was better suited to long-term improvements, not the immediate strategies that would protect people in the midst of an epidemic. By contrast, contagionist ideas offered new technologies of neo-quarantinism and disinfection, which allowed authorities to target cholera specifically, rather than filth in general. By addressing the problem of cholera in a more focused manner, the methods that contagionism inspired provided much more efficient and effective protection from cholera during epidemics. Thus, while both paradigms technically explained cholera and offered strategies for preventing it, contagionism functioned better than miasmatism under epidemic conditions, especially in 1849, when health authorities had trouble implementing their goals.

This study also highlights structural factors necessary for a successful public health intervention. While cities such as Chicago and St. Louis lacked sanitary infrastructure and performed dismally at preventing cholera, cities such as New York and London, which did develop infrastructure, were much more successful. Implementing sanitary infrastructure establishes a precedent for public health interventions that can be useful for future epidemics. For instance, Britain used tools from 1849 in 1866, allowing authorities to mobilize relatively quickly because of the presence of pre-existing structures and laws. Such development requires significant political capital, as many public health interventions can be both expensive and intrusive. Both New York and London were able to mobilize enough support to give them the

financial and legal support to accomplish their goals in 1866. By contrast, in 1849, American reformers could not muster such resources, and Edwin Chadwick never developed the political capital necessary to achieve his goals. Even if the Victorians had known about the cholera bacterium in 1848, it is unlikely that they could have controlled the epidemic because implementation was so haphazard. Thus, public health interventions that prove successful have the political capital to set up legal and structural means for achieving their goals.

Along with this infrastructure, a successful intervention requires a relative lack of conflict, both in the medical community and between physicians and public health authorities. While some debate is necessary and healthy, dissension polarizes people, dividing attention (and funding) and thereby weakening the overall effort. Tensions within the medical community or between physicians and public health officials limited the success of cholera prophylaxis in 1848-9, but a relatively cooperative medical community and public health system were instrumental in mounting effective efforts in 1866. Inherent in this relationship was a chain of command that placed respected experts in charge and delegated responsibility to those who had experience with the disease. Examples abound in which criticism erupted because physicians did not have the authority they believed they deserved, as they felt neglected by lay authorities or competed with alternative practitioners for power. In other situations, most notably Edwin Chadwick's case, but also evident in several American cities, the leaders of public health lacked experience or leadership skills and could not accomplish their goals. Thus, consensus in the medical and public health communities behind a reasonably efficient leader is crucial for success.

The idea of consensus in the medical community is particularly intriguing during this period, as physicians possessed low status and were not completely unified by any means, even

by 1866. It would be misleading to portray physicians in 1866 as united on all fronts, but they clearly cooperated to a much greater degree, if only on cholera prevention, than they had in 1849. My analysis does not disallow the idea that this greater consensus occurred because physicians realized that it was in their self-interest. After all, it made sense to be affiliated with the official response as public health systems grew more powerful. Whatever the motivation of physicians, this greater consensus between medicine and public health resulted in more effective cholera prophylaxis.

For arguably the first time in modern history, these specific factors came together in 1866 in Britain and America during the cholera epidemic. A comparative study serves to illuminate that these criteria are not just anomalies in either location. These nations developed systems that were different in significant ways, yet cities where these principles were applied managed to achieve their goals of sanitary reform. By examining these factors, this thesis has suggested wider principles applicable to the discipline of public health. This provides a framework for analyzing the success (or apparent success, in situations such as this, where real statistics are difficult to ascertain) of other public health interventions. If authorities were ineffective, where did their mistakes lie, and how might they have been successful?

Explanatory Framework

As an explanatory framework, this could be expanded into many future studies. Although this study is complete without discussing the 1854 epidemic, one could fill in the gaps by studying London and the affected U.S. cities during that time. This would be helpful in understanding the public health legislation and development of infrastructure that would set the stage for 1866, particularly in Britain. Looking more closely at the translation of Snow and Pettenkofer's theories into practical tools like neoquarantinism and disinfection would also better

help to understand their adoption in the next epidemic. Another possible extension of this study could be shifting the focus to non-medical texts of the period. Tracing popular respect for public health and physicians, theories of etiology, and conceptions of prophylactic effectiveness might illuminate factors that medical texts did not emphasize. How did the public feel about public health authorities and physicians and their efforts to combat cholera, and why?

The next logical step would be looking at other epidemics to see how different authorities responded and how their experiences fit into this argument. Studying the experiences of France, Germany, Eastern Europe, or South American countries affected by cholera could provide a much broader base of information from which to draw conclusions. Another direction for a project might be extending the study into the twentieth century to examine if, where, and how health authorities became more successful at combating cholera after the discovery of the bacterium. Do my conclusions hold? One could also apply such principles to entirely separate diseases. Focusing on infectious diseases during the development of public health would probably be the most illuminating, as other diseases simply did not garner as much attention from physicians and health authorities and would be significantly harder to examine critically. These studies could investigate how these principles played out in other contexts and determine if there are other significant factors not evident in this argument.

Lessons of 1866

My argument also provides practical lessons for those interested in public health or working to implement such programs. One might glean from this study that knowledge about the disease in question is important, but is not sufficient to produce effective results. It is worth noting that Snow and Pettenkofer's theories were close, but they were not fundamentally correct, yet authorities still managed to make significant gains against cholera. Not completely

understanding a disease, therefore, is no excuse for ineffective prophylactic methods. Along the same lines, consideration of the diversity of opinion is also important, as people will not always know the “right” answer, just as they did not in the nineteenth century. People must make the best decisions possible with what tools and knowledge they have (which might not necessarily be very much), and it is imperative to consider alternate viewpoints if evidence leans in those directions. Authorities must be willing to change their strategies if it becomes clear that they have not worked, or valuable time and resources will go to waste.

The necessity of the establishment of strong infrastructure and good relationships between involved parties also resonates in this study. Brilliant ideas in public health can fail merely because of faulty implementation. The best way to prevent this is to establish systems of infrastructure, tailored to the specific needs of the population, that possess the authority, financial support, and political capital to perform what is necessary. This analysis also reveals that a successful dynamic is crucial. If there are power struggles or too many opinions over what is the best method to pursue, the full effort and resources will not deploy in the correct direction, weakening the overall response. For public health programs to be effective, there should be a respected authority who listens to ideas but ultimately has the final word over what will occur, as an effective person in this position can help eliminate struggles over authority. By learning from the mistakes of the early public health reformers, modern health authorities can give their plans the best chance of success.

Some might argue that what worked for cholera in the nineteenth century would not work for the problems currently facing public health. However, what endures from this study is not a particular model for intervention, but a way of approaching unforeseen problems: with foresight, cooperation, and flexibility. This is particularly important now, when health authorities find

themselves faced with the new challenges of chronic diseases coupled with the resurgence of more powerful infectious diseases. These situations are in many ways analogous to what occurred in the nineteenth century, as there is a need to develop entirely novel models of intervention to counter new threats. As in 1866, modern authorities cannot afford power struggles, stubbornness, or wrong turns in public health, particularly when funding, even in developed countries, is so low. One might even argue that part of our problem in the United States today is that the medical and public health communities are separate and competing factions in the healthcare system—hardly the ideal structure when dealing with the growing threat of chronic and re-emerging infectious diseases. An understanding of the fundamental principles behind successful public health interventions, such as those discussed in this analysis, helps to give guidance to modern authorities. As a result, we can benefit from the mistakes made by our predecessors and implement the most effective public health programs possible.

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