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**"CHOLERA AND THE TRANSFORMATION OF
PUBLIC HEALTH IN AMERICA"**

Suzanne Vroman

INTRODUCTION

At the end of the Civil War in 1865, Americans could finally look forward to a peaceful summer for the first time in five years. However, as news swept through the nation of a prevailing cholera epidemic already present in much of Europe, the country once again prepared for battle. Unlike the cholera outbreaks of 1832 and 1849, in 1866, the United States was prepared for the arrival of the third pandemic. Largely in part to European influence, the nation understood the dangers of the unsanitary conditions present in the city slums during the mid 1800s. However, the outbreak of the Civil War in 1861 hindered any hopes of nationalizing public health in the United States. Despite these setbacks, advocates of public health reform felt a new surge of confidence in the winter of 1865 to 1866. During this time the combination of the known success of the European sanitation movement as well as the threat of another pandemic led to a rapid incorporation of European public health standards in American cities. The following decade would mark an interesting period in American medicine as empirical science would gradually take the place of traditional medical practices that focused on religious values and the cleansing of moral impurity. The founding of Johns Hopkins University in the following decade exemplified these changes and would define the extent at which the nation would accept or reject this new influx of scientific ideology sparked by the onset of the 1866 cholera epidemic.

The purpose of this paper will be to answer two questions resulting from the changes in American health care following the Civil War. The first will focus on how the cholera epidemic escalated the rapid assimilation of American cities to the European public health standards. The second will be a case study of the launching of Johns Hopkins University and how it transformed medical education in the late 1800s. Drawing from Charles Rosenberg's writings in *The Cholera Years and Explaining Epidemics*, I will explain how Europe gradually became center of intellectual and scientific thought in the early 1800s. I will use the response to the earlier epidemics in this time period to show the transformation of public health in Europe and how their new scientific methods were later incorporated into methods used during the 1866 epidemic in the United States. In keeping with the same theme, in the second part of the paper, I will be drawing from John M. Barry's novel *The Great Influenza*. Barry argues that the founding of Johns Hopkins University marked a new decade in American medicine as it became the first American university to follow the same scientific curriculum as the best European insti-

tutions. Therefore, my argument will show that the cholera epidemic not only reshaped the way public health authorities handled disease in America but also influenced the way medicine was taught a decade later.

EARLY EUROPEAN INFLUENCE

The revolutionary ideas of nationalized medicine and systems of public health were primarily fostered by the works of English physicians. As early as 1842, Englishmen such as Edwin Chadwick, William Farr, and John Simon were well aware of the dangers associated with poor drainage, foul water, and crowded tenements.¹ In his report on the poor living conditions of British workers, Edwin Chadwick made his countrymen aware of the dangers associated with England's current sanitation system and was largely responsible for the creation of England's national board of health. More importantly, these physicians pioneered a new way of combating disease suitable for their time period. For the first time they realized that diseases that could not be cured had to at least be prevented through cleanliness and sanitation. This new idealism, which focused on finding the cause of disease and then treating it through prevention, came at a time when the general community began to mistrust the physician's ability to cure. The older theories of miasmatic causes to disease began to dwindle and therefore the older medical treatments of "cleansing" the body also declined. The state of medicine was placed in a unique position as it advanced to the point where physicians began to comprehend how disease was spread, but it was still too primitive for health officials to understand how to devise a cure for these diseases. As a result the medical profession saw the implementation of a new growing field of public health.

While the sanitation movement was making immense progress throughout Western Europe, very little advancement was seen in the United States. The relatively late rise of American cities helps to account for this explanation, but by the 1830s, other American reform movements were already growing rapidly. The most important among these included temperance, the abolition of slavery, and woman's rights.² Government officials were preoccupied with these larger concerns of political unrest and therefore found little time to be concerned with what seemed to be the smaller issue of public health reform.

Another explanation to the unwillingness of the United States to conform to the public health standards in Europe resides in the inefficient contributions of church authorities. The American religious movement of the early 1800s emphasized the importance of individual salvation compared to the movement in Britain, which focused more upon social concerns. As a result, public health that focused on community involvement

1 Charles E. Rosenberg. *The Cholera Years: The United States in 1832, 1849, and 1866* (Chicago: The University of Chicago Press, 1962), 143.

2 John Duffy. *The Sanitarians: A History of American Public Health*. (Urbana: University of Illinois Press, 1992), 66.

did not receive the support and leadership necessary to make it a major concern in the United States.³ While health and diet reforms were present within this time frame, the influence of the church led the reformers to emphasize the health of the individual rather than the community. Moreover, the religious leaders in America played a more prominent role in shaping the way Americans responded to the cholera epidemic. Clergymen claimed that cholera was an exercise of God's will and was to be seen as a disease of filth and sin. Therefore, the church accepted the early cholera epidemics as God's punishment in response to the corruption of the cities.⁴

The connection between moral impurity and cholera and the observation that it affected a greater number of people present in the city slums, allowed for the public to target the usual victims. The church blamed the increased poverty levels on the moral failings of immigrants and wage workers rather than the lack of social programs.⁵ They rejected the idea that it was a civil duty to improve the lives of the poor, and therefore they were not responsible for the polluted and diseased streets present in the major cities. Consequently, as European cities worked to control cholera through improvements in public health and sanitation, cities in the United States continued to suffer from the uncontrollable cholera outbreaks in the early 1800's.

Even throughout Europe, which possessed the most forward thinking physicians of the time, there were still many skeptics who clung to the older notions of religious and miasmatic theories of disease. To change their opinions it would take the father of epidemiology, John Snow, to set forth greater measures of preventative medicine that were initiated by his predecessors. As early as 1849, Snow suggested that cholera was a contagious disease caused by a poison present in the bodies of its victims. More importantly, he claimed that this "poison" was most frequently obtained through contaminated water supplies.⁶ Snow's initial advance in the field of epidemiology was extremely innovative for his time period. Following the work done by Chadwick, Snow's argument still required a greater understanding of chemistry, pathology, and public health than any scientist had previously suggested. As a result, his findings did not receive immediate recognition. However, by the 1860s, as the next cholera epidemic appeared in Europe, Snow was beginning to acquire more converts. Eventually, more public health authorities began to accept Snow's notions of disease and by the 1870s the municipal government was promoting the necessary change required to control these outbreaks.

In spite of this, the United States continued to lag behind in terms of world science. Understandably, internal conflicts present throughout the mid-1800s may have

3 *Ibid.*, 67

4 Rosenberg, *The Cholera Years*, 121.

5 *Ibid.*, 133-143

6 Charles E. Rosenberg. *Explaining Epidemics and Other Studies in the History of Medicine*. (New York: Cambridge University Press, 1992) 117.

distracted Americans as the British parliament passed the Public Health Act in 1848. This may have also been the reason why health leaders failed in 1853 to take notice of John Snow's discovery that if he removed the pump handle on a contaminated water supply, he could slow the cholera epidemic in nearby neighborhoods. Consequently, as Americans continued to focus on the Civil War in 1862, more soldiers were dying of disease and infection than they were of battle wounds.⁷ On the civilian front, the war also heightened tension between immigrants as the outbreak of disease escalated American resentment toward the influx of more poverty stricken wage workers. Especially in New York, the board of health was doing very little besides increasing the amount of corruption and turmoil present in the overcrowded city.

Ironically, New York would become one of the first cities to eventually conform to the European standards of health. As the Civil War was raging in America, Europe was entering another great intellectual revolution that would make disease definable and, with that, elevated to the status of problems humanity might solve. In 1862, Louis Pasteur published his theory on the existence of germs that he argued were the key to fermentation, resolving some of the great debates of the past.⁸ As Science became the forefront of medical practice, theories of spontaneous regeneration and miasmas eventually died down as the majority of Europeans began to accept the germ theory of disease. As a result physicians in America and more specifically public health officials in New York began to generally accept Snow's theories at the end of the Civil War.

Following the war, America's larger cities had no choice but to duplicate Europe's public health policies. Every major city was overflowing with disease and it was obvious that the country was in need of dire reform, but the only model they had for reshaping their health care policies came from Europe. As the cholera epidemic was raging through Europe in the 1860s, there was no doubt it would eventually find the shores of North America. The fear of facing another cholera epidemic similar to the ones seen in the United States in 1832 and 1849 was enough to force the public health authorities to think rationally about the threat of the 1866 pandemic.

Starting in New York, the medical profession gradually began to accept Snow's discoveries, which would initiate the creation of the Metropolitan Board of Health that would be qualified to combat the coming epidemic. During the war, New York was filled with corrupt public health officials that allowed the city to become one of the worst areas of disease in the country. However, New York also contained a large number of the social elite represented through doctors and lawyers that clung to any solution to the problems present in their city. Therefore, by creating the Metropolitan Board of Health, they provided a strong influence in support for Snow's theories of sanitation. A group of

⁷ Laurie Garrett, *Betrayal of Trust: The Collapse of Global Public Health*. (New York: Hyperion, 2000) 285-287.
⁸ *Ibid.*, 291

these high class physicians would initiate the first response to the disease present in the cities by developing a survey to measure the unsanitary conditions. In their final report they remarked on the disturbing images of disease and filth they saw throughout city. Within the publication they concluded that only a complete reordering of the city's sanitary arrangements would seem sufficient enough to protect the city's health.⁹ Therefore, the city needed to act quickly if they were going to be prepared for the next outbreak of cholera. As a result even before the first case of cholera developed in New York, the new board of health was already supplying the city with an influx of chemicals and disinfectants to sanitize the streets.¹⁰ When the cholera epidemic docked on the shores of New York, the city ensured through their new sanitation efforts that they would be ready.

For the first time in 1866, the American community had successfully organized itself to conquer an epidemic. As Rosenberg claims in his novel, *The Cholera Years*, "In the history of public health in the United States, there is no date more important than 1866, no event more significant than the organization of the Metropolitan Board of Health."¹¹ By 1866, there were few intelligent physicians who doubted that cholera was spread through contamination as many of them were readers of European medical journals. In a city so full of disease and corruption, the first board of health looked to solve society's problems instead of blaming society for the problems. Finally health officials were able to convince the laymen and the government to be open to the idea that cholera might be caused by microorganisms, and the Metropolitan Board of Health was willing to put this assumption into practice. As the first signs of cholera appeared in New York the board was quick to act, not through fasting and prayer, but through disinfection and quarantine. The board was met with some resistance as many citizens still clung to their traditional values and did not comprehend the methods of cleaning, waste disposal, and quarantine. The lower class citizens opposed the control of the board filled with elites and felt that this was another attempt forcing them into submission. However, although New York greatly increased in size since the last epidemic in 1849, there were a tenth as many cholera deaths from the epidemic in 1866. The new methods of the board seemed to be success as other cities such as Chicago and Cincinnati, which did not have a board of health, did not escape the cholera epidemic so easily.¹²

The Metropolitan Board of Health's success introduced to America what Chadwick had introduced to Europe in the early 1800s, which was the idea that diseases that could not be cured had to be prevented. The board of health successfully met the specific challenges of America's new industrialized society and after the epidemic had passed, eventually gained acceptance from many of their critics, including both laymen and gov-

⁹ Rosenberg, *The Cholera Years*, 188.

¹⁰ Rosenberg, *Explaining Epidemics*, 121.

¹¹ Rosenberg, *The Cholera Years*, 193

¹² *Ibid.*, 209-211

ernment officials. More importantly Americans began to realize that their nation was like other nations, while it may perhaps be better than most, it was no longer any different. The problems they had fled from in the Old World, such as corrupt government officials, diseased city slums, and crime became the problems of the new. They were not immune to the diseases and corruption that they had accused England of centuries ago, and while their pride may have been hurt, they came to the understanding that it was only with the help of the English scientists that they were able to protect themselves from the 1866 epidemic. In the thirty-four years between 1832 and 1866, the idea of disease in America had changed from a moral dilemma to a social problem. Disease was now considered a consequence of man's interaction of his environment rather than of moral choice and salvation.¹³ In 1849, religious officials dominated the response to the cholera epidemic as seen through President Zachary Taylor's declaration of a national day of fasting and prayer as the major means of fighting the outbreak. However, in 1866, it was clear to most that a fast day at best was useless and at worse another source of additional disease. As a result the traditional Christian metaphors of the soul's health were widened to include biological causes of disease in their now less clear metaphors. While these metaphors were still present within the "sinful" society, they were no where near as influential because it was science and not theology that could interpret these new biological causes.¹⁴ Therefore, at least in terms of public health, medicine was developing into more of a science than it had ever been before.

MODERN MEDICINE AND JOHNS HOPKINS UNIVERSITY

Following the epidemic, public health in America reached a high enough level to compete with some of the best public health systems in Europe. However, medicine in the United States remained relatively the same. Not many doctors bought into the scientific ideology in terms of medical education, which would have required students to understand theories of basic science before entrance into medical school. To the general physician in America, science was only undermining therapeutics, and therefore relatively few doctors supported the study of physics and chemistry as a means of treating disease.¹⁵ This was seen within the educational system as neither a college degree nor knowledge of the basic sciences was required for entrance into medical school. In the 1870s, as European medical schools were giving their students rigorous scientific training subsidized by the state, religious practices of universities in the United States still hindered medical students from routinely performing autopsies or seeing patients.¹⁶ Due to the state of medical education in the United States, perhaps the most important contribution of the cholera epidemic was to shed light on the inferiority of medical advance-

¹³ *Ibid.*, 228

¹⁴ *Ibid.*, 121-132

¹⁵ John M. Barry. *The Great Influenza: The Epic Story of the Deadliest Plague in History*. (New York: Penguin Group, 2004) 31.

¹⁶ *Ibid.*, 32

ment within the country. Following the epidemic there were a few wealthy physicians from America whose curiosity led them to Europe to learn through scientific research.

Of the physicians who were able to venture to Europe, the laboratory research experience was incomparable to anything they had seen in America. Unfortunately American universities were not ready to accept these advancements upon the return of these physicians. The technology and research present in Europe was supported through the government and the universities, however neither was to be expected in the United States. In 1870, not a single institution in the country supported any kind of research. In 1871, the first laboratory for medical research was established in the attic of a Professor's home at Harvard, which was funded by his father.¹⁷ Therefore, there still seemed to be no clear future for scientific research in the United States. Without financial support from the state or universities it would be almost impossible to build a proper laboratory at a respectable institution.

However in 1873, the problem with financing a respectable university was solved as a wealthy Quaker would die and leave behind \$7 million to endow a university and hospital bearing his name. This man was Johns Hopkins, and at the time his donation became the largest gift given to any university.¹⁸ Precisely what Johns Hopkins meant by university was debated long after his death owing to discrepancies in his will, but the definition of the University's mission was left up to twelve trustees whom Hopkins named. These were all trustees who Hopkins 'believed to be free from a desire to promote, in their official action, the special tenets of any denomination or the platform of any political party'.¹⁹ As a result, in an age when all prestigious American universities were affiliated with some form of religious denomination, Hopkins' trustees determined that the new University would be nonsectarian. In this way Johns Hopkins University was already becoming revolutionary, but that was only the beginning, because the trustees' next ambition was to make the University like no other university America.

To help the trustees in their ambition they hired Daniel Coit Gilman as the first president of the University. In their plans they chose to go against the advice of presidents from many of the major institutions of the time including Harvard, Yale, and Cornell, as they decided to model Johns Hopkins University after the greatest institutions in Germany.²⁰ Their decision was based on the account that they wanted to make this university strictly a place where men consumed with creating knowledge could gather, without the fear or influence of religion upon their practice. In the 1870s, the University would determine the degree to which the nation would accept or reject modern science in replace of the traditional religious theories.

¹⁷ *Ibid.*, 32-33

¹⁸ Maryann P. Feldman and Pierre Desrochers. "Truth for its Own Sake: Academic and Technology Transfer at Johns Hopkins University." *A Review of Science, Learning and Policy* Vol. 42, No. 2 (2004): 105-126.

¹⁹ *Ibid.*

²⁰ Barry, *The Great Influenza*, 33

Therefore, on September 12, 1876, the launching of Johns Hopkins University would test the ability of the public to once again accept the influence of Europe's scientific and medical practices. To honor Hopkins' vision, Thomas Huxley, a respectable English scientist who believed in the creation of this new University, came to America. As the keynote speaker, he personified the goals of the University in his opening remarks as he argued that Johns Hopkins University would be unlike any other university in America. He claimed that the purpose of Johns Hopkins University would not be to rival the universities of Harvard or Yale, but the greatest medical schools in Europe²¹ For the first time, America would place a value on scientific research, and Johns Hopkins University would eventually allow American medical science to catch up to that of Europe.

With the recruitment of some of the finest European scientists to Johns Hopkins faculty, the University would meet and exceed its expectations as a respectable scientific institution. When Robert Koch finally discovered the bacterium *Cholera vibrio* in 1883, it was not only naturally accepted by the United States, but by that time it was expected.²² The extensive studies of John Snow, along with the launching of Johns Hopkins University, allowed for American scientists to comprehend Koch's discovery of the bacterium, which most likely would have met a considerable amount of controversy two decades earlier. By the end of the century Johns Hopkins revolution was complete, and the United States was well on its way toward becoming a powerful competitor in modern science.

As Physician Bertram M. Bernheim states in his opening chapter of *The Story of Johns Hopkins*, "If you are a doctor in these United States, you have been affected by Johns Hopkins Medical School and Hospital."²³ His argument, as bold as it may be, has a great amount of validity. There is no doubt that the United States would have eventually raised their standards to those of the European nations without the launching of Johns Hopkins University. It would have only been a matter of time before the United States realized that the study of basic sciences required of the European schools were essential for any respectable medical practice. Perhaps this phenomenon would have resulted only a few years later when Koch discovered *Cholera vibrio*, or maybe it would not have occurred till the early 1900s with Alexander Fleming's discovery of Penicillin. Nevertheless, the quick and efficient success at which University was founded on would have been difficult to duplicate. Barely a decade before, the country's public health system was a disaster with no system of sanitation to combat the coming epidemic. At the time the nation was unprepared to accept such a drastic change from their traditional beliefs of the miasmatic and moral theories of disease. However, through the success of

21 J. Vernon Jenson. "Thomas Henry Huxley's Address at the Opening of Johns Hopkins University in September, 1876." *Notes and Records of the Royal Society of London*, Vol. 47, No. 2 (Jul., 1993): 260.

22 Rosenberg, *The Cholera Years*, 199-200.

23 Bertram M., M.D. *The Story of the Johns Hopkins: Four Great Doctors and the Medical School they Created* (New York: McGraw-Hill Book Company, Inc. 1948). 1

the Metropolitan Board of Health and their general acceptance of John Snow's writings, the county's ideas of disease began to slowly change. As a result, the cholera epidemic of 1866 allowed Americans to follow the European standards of public health, which would eventually lead to the adoption of the European structure of medical schools as well.

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FOREWORD: *My Name Is Red* is a novel by Turkish Nobel laureate Orhan Pamuk. In 16th-century Istanbul, an elite group of miniaturist painters secretly toil over a book, ordered by the Sultan himself, to be rendered in the "heretical" Frankish style. Each chapter is told from a different character's perspective, sometimes even from the lips of a drawing displayed in one of the city's notorious coffeehouses. This piece is an attempt to replicate Pamuk's distinctive style, and to humanize one of history's more elusive cultural identities.

I AM A BEDOUIN RAIDER

Spencer J. King

No doubt that in your current state of mind, stimulated as you are by the rich coffee steaming in your cup, you are induced to seek out much merriment and sources of joviality. But look no further, friend, than to the eloquent drawing before you now as it is displayed by that graying miniaturist with such pride. Behold the regality of my turban, the sure step of my disciplined camel, the noble ferocity with which I tote my ornamented spear. Surely to your prying urban eyes I must appear somewhat of a novelty, or even rather buffoonish, especially due to the bizarre manner of my rendering. But rest assured, friend, that in my native desert I am the master of all that I can see. Also know that I wasn't always confined to this simple piece of parchment as you see me now, but that once I felt the wind in my hair as you feel it, and loved women as you love them.

In truth, I was once a brave warrior of the Juhayna tribe and won many battles. Our herds were vast, with sheep stretching as far as the eye can see and the noblest camels in all the deserts; alas, in my day my brothers knew greatness. Our herds provided us with food, shelter, fuel for burning, and all the necessities of life. When we were in want of rich fabrics, weapons, or jewelry for our women, we took them in great number from the caravans who traversed the dunes. Now, understand that as I have traveled to all corners of your Sultan's glorious empire within the confines of this fading piece of parchment, I am quite familiar with much of your esteemed literature. Try to contain your surprise as I quote that fork-tongued Mustafa Ali, who held my brothers in an even lower regard than he did those plundering Tatars:

Ready to commit the most abominable acts [are those] Bedouin horsemen... Other packs, even while evil footed, content themselves with stealing property as their daily bread. [The Bedouin] are indeed of evil character, injurious, and corrupt (Ali 54).

As poisonous as are these words you may be shocked to find that I take no offense, for a Bedouin tribe confined to horses is likened to your Sultan confined to an