

# Drs. Walter Reed AND Louis Wilson

## A MINNESOTA PARTNERSHIP

Richard N. Danila

*“Strange, isn’t it? Each man’s life touches so many other lives,  
and when he isn’t around, he leaves an awful hole, doesn’t he?”*

—Clarence to George Bailey in the movie *It’s a Wonderful Life*

Walter Reed was a US Army pathologist and bacteriologist best known for his historic work in 1900 confirming that the mosquito is the vector of the disease yellow fever. Caused by a virus, yellow fever was probably transferred to the Americas from Africa through the slave trade. At least 25 major outbreaks killing tens of thousands had occurred in the Americas in the eighteenth and nineteenth centuries. The disease was generally thought to be transmitted directly by patients or items contaminated by them. But the mid-nineteenth century marked the dawn of the golden age of microbiology, with new medical discoveries occurring frequently.

In 1862, Louis Pasteur demonstrated that germs were not the result of spontaneous generation, but rather they floated in the air, kicking off the germ theory of disease. Known as the father of microbiology, Pasteur also demonstrated that disease could be prevented by stopping or killing microorganisms. We continue to honor his methods of killing germs

in milk through heating by calling it pasteurization.

In the 1870s to 1880s, Robert Koch discovered the bacteria that caused anthrax, and then the bacillus causing tuberculosis. In 1883, he also isolated the bacterial cause of cholera while investigating epidemics in Egypt. The discoveries of many infectious causative agents of disease soon followed. Microscopes improved, as did methods to view the microbes. The practice of growing bacteria in a pure culture media was developed. Antiseptic surgery to prevent infections followed. From all of this new knowledge began the development and use of vaccines made from killed bacteria.

With the advances in microbiology, a Cuban physician and epidemiologist named Carlos Finlay theorized in the 1880s that mosquitoes were spreading an unknown agent through their bites, and that the transmission of this agent led to yellow fever. Walter Reed followed up on Finlay’s work in 1900, when the US Army appointed him to lead its new Yellow Fever Commission in Cuba to study an outbreak among

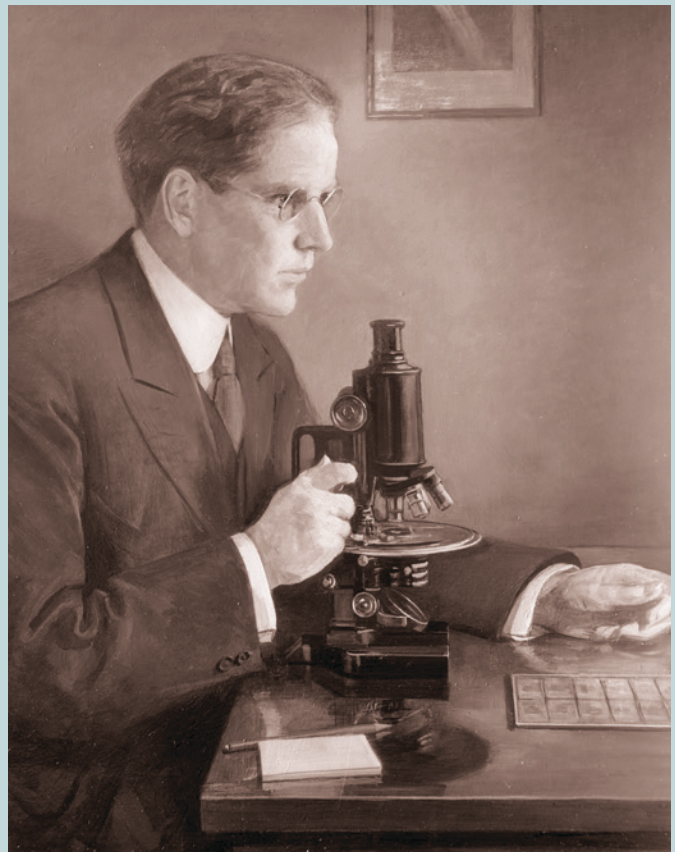
US troops in Havana. That same year, Reed was able to prove that humans got sick after being bitten by infected mosquitos, and preventive measures to control mosquitoes soon eradicated the scourge. In addition to saving lives, disease prevention enabled the United States to complete the yearslong construction of the Panama Canal in 1914—an effort that France had previously been forced to halt due to yellow fever outbreaks.

At the time, Reed’s work was considered to be an epic public health breakthrough, and he received many awards. Today, many recognize his name from the national military medical center named in his honor and often featured in the medical care of US presidents. Often overlooked in his biographies, however, is the fact that Reed lived in Minnesota for a few years. He served as a first lieutenant medical officer at Minnesota’s Fort Snelling in 1891–92, and as the medical examiner of military recruits and government workers in St. Paul in 1892–93.

Like Reed, Louis Blanchard Wilson also came to Minnesota for medical reasons. After graduating from Pennsylvania State Normal School in 1886, he moved to St. Paul in 1888 to teach biology at St. Paul High School (now St. Paul Central High School). At the same time, he enrolled



Major Walter Reed, 1902



Dr. Louis Wilson, 1905

in the University of Minnesota Medical School. Later, he would become the first director of the Mayo Clinic Laboratory in 1905, establishing it as a premier medical laboratory, and the first director of the Mayo Graduate School of Medicine in 1915.

By chance, at the annual meeting of the Ramsey County Medical Society in 1893, Drs. Reed and Wilson met and established a professional relationship that would inform and shape their later successes. Although their time together was brief and we have few specific details as to their friendship and collaboration, it is hard not to speculate how their time together in Minnesota affected their future endeavors and successes.

### Walter Reed

In 1875, six years after receiving his medical degree, Reed was commissioned as a US Army first lieutenant

assistant surgeon. Born and raised in Virginia, the east coaster was transferred to 15 different western frontier military posts, caring for soldiers and settlers. Reed had broader interests and applied for a leave of absence in 1890. Although the leave was not granted, he was transferred to Baltimore, Maryland, as an attending surgeon and examiner of recruits, and there he was able to continue studies at Johns Hopkins University.

At Johns Hopkins, Reed studied bacteriology under the prominent microbiologist and physician William Welch. One biographer noted that the professors at Johns Hopkins “helped to change Walter Reed in his 40th year from an effective and kind but unspectacular, possibly even drab, military medical man to a scientist and investigator of the highest order.”<sup>1</sup>

Surely Reed was very disappointed when after a year, in October 1891, he

was ordered to Fort Snelling in Minnesota. Very little is recorded about his nine-month stay at the fort except that his son went to “the High School in St. Paul from Fort Snelling for a short period.”<sup>2</sup>

In August 1892, Reed was transferred to downtown St. Paul, where he served for a year as attending surgeon and examiner of military recruits of the Department of Dakota. This military section served Minnesota, North Dakota, most of South Dakota, Montana, and Wyoming. Its offices were in a building at the north end of the Robert Street Bridge, and Reed and his wife and son lived at the Albion Hotel.

Reed likely chafed at this assignment. His intellectual mind, however, was active and his first scientific paper, on erysipelas (a bacterial skin infection), was published in the *Boston Medical and Surgical Journal*

in 1892. It was followed in the spring of 1893 by “Remarks on the Cholera Spirillum,” which was published in the Minnesota medical journal *Northwestern Lancet of St. Paul*. As noted, the cause of cholera had been confirmed just nine years earlier, and Germany was currently experiencing a major outbreak.<sup>3</sup>

Reed wrote to his sister Laura Reed Blincoe on April 7, 1893, “I believe I am your debtor to the extent of one letter. I had intended writing but have been so busy with my bacteriological work—studying the microbe of Asiatic cholera—that I have got much behind in my correspondence.” His studies had been a most welcome distraction that winter in St. Paul. The weather had been a brutal annoyance to the Virginian, with a low temperature of -27 degrees on February 21 and with 69.8 inches of accumulated snow. He noted in the letter to his sister, “What a winter we have had in Minnesota!”<sup>4</sup>

With much medical interest on the recent discoveries of cholera, Reed presented his soon-to-be-published paper on cholera at the annual meeting of the Ramsey County Medical Society on March 27, 1893. Reed was also able to show cultures of cholera bacilli that he had obtained from a colleague in the army medical corps, Colonel George Miller Sternberg (later the US surgeon general), who served as consultant on the disinfection of ships reaching the New York Quarantine Station during the German cholera outbreak. Reed wrote to Sternberg his “heartiest thanks for the cultures which arrived in good shape, a few days ago.” After Reed’s presentation to the Ramsey County Medical Society, its members expressed their appreciation when a “vote of thanks was extended to Dr. Reed for his kindness in showing his cultures of cholera bacilli and giving such a clear exposition of the subject.”<sup>5</sup>

## Reed and Wilson Connect

At the meeting, the University of Minnesota Medical School dean, Perry H. Millard, introduced Louis Wilson, the Central High School teacher, to Walter Reed, describing the young medical student as “a man who had a laboratory.” Wilson later remembered that Reed responded “with what for him was real enthusiasm.” Not much is recorded about Wilson’s time as a high school teacher, although the 1890 yearbook section on “Our Teachers” mentions, “There is handsome L. B. Wilson with his spectacles so fine.” Wilson informed Reed that the high school had an “unusually good biological laboratory.”<sup>6</sup>

The two immediately began a professional relationship. Wilson noted that Reed “had been transferred to duty at a point in the army where the only laboratory equipment provided consisted of a few test tubes.” Reed helped Wilson improvise and improve “fairly effective bacteriological apparatus—mostly from gas ovens and boilers inherited from a discontinued Domestic Science Department!” The older Reed provided the skill and knowledge, and Wilson “learned from Doctor Reed the elements of bacteriology.” Reed’s regular duties left him little time to pursue his scientific interests, but “as he instructed his first student in the elements of bacteriology, Reed felt the deep satisfaction of encouraging a promising young man in the field for which he himself felt such enthusiasm.”<sup>7</sup>

Their collaboration began with diphtheria, a feared disease that has been known in humans since the fourth century BCE. The bacterium that causes the disease was first discovered in 1883. Although most infected persons are asymptomatic, diphtheria can be lethal, and in outbreaks up to 10 percent of its victims may die. The modern diphtheria vaccine was developed in the 1920s.

The disease had been a well-known problem in Minnesota since white settlers first arrived, with periodic outbreaks occurring in lumber camps, so it was natural that Reed and Wilson first collaborated on a diphtheria research study.<sup>8</sup>

In New York, Dr. William H. Park had just developed a technique to diagnose diphtheria from a throat culture swab. Wilson later told the story:

Doctor Reed and I got from Doctor Park a sample box, holding two test tubes, one containing a sterile swab and the other a solidified serum culture medium. We went into our own pockets,—in which there was very little money!—for funds to have made for us at a local box factory one hundred boxes for diphtheria culture outfits. These we distributed to several physicians in St. Paul asking as a favor that swabs from throats of cases of suspected diphtheria be sent to us.”

This may have been the “first attempt at the examination of throat cultures for *Bacillus diphtheriae* west of New York.”<sup>9</sup>

Reed’s military service in St. Paul ended on August 31, 1893, after he had received an appointment as curator of the Army Medical Museum and professor of bacteriology in the newly organized Army Medical School in Washington, DC. His joint work with Wilson on diphtheria, however, continued to influence him, as shown in 1894 when he was invited to participate in a discussion before the Medical Society of the District of Columbia on the prevention and control of diphtheria. Reed later advanced in rank to major and surgeon.

## Louis Wilson

After graduating from medical school in 1896, “largely because of my expe-

rience with Dr. Reed,” Wilson gave up his teaching job and became an assistant to Dr. Frank F. Wesbrook, who had just been hired as the director of the newly built Minnesota State Board of Health Laboratory. Wilson’s and Wesbrook’s primary work was the diagnosis of diphtheria from throat cultures. “The big problem then was diphtheria, for the disease was widespread and not too much was known about it.” They elucidated its mode of transmission and presented at international conferences and in medical journals.<sup>10</sup>

Wilson and Wesbrook also began testing for typhoid fever on November 1, 1896, four months after the first publication in France of this test. In 1897, the two researchers had one of the first American papers published on this topic after an outbreak in Minneapolis.<sup>11</sup>

In 1905, Wilson began his 38-year career at the Mayo Clinic. He first was hired to “organize and develop its laboratories.” He developed innovative laboratory techniques such as using rapid freezing to examine tissue while the patient was still in the operating room, and cameras for laboratory work. In 1915, he became

the first director of the Mayo Graduate School of Medicine, to which he devoted himself full-time after leaving the laboratory in 1920. Under his direction the school became one of the premier such institutions in the world. Perhaps reflecting and honoring his mentor Reed, during World War I Wilson took on the additional role of serving in the US Army, researching wounds produced by various projectiles.

## Conclusion

Reed’s major medical contributions about typhoid and yellow fever led to honorary degrees at Harvard University and the University of Michigan. Unfortunately, he suffered an untimely death in 1902 due to complications following an appendectomy. The Walter Reed General Hospital opened in 1909 and was named in his honor. Following improvements and changes over the years, it is now known as Walter Reed Medical Center, and has become well known for the care and treatment of US presidents.

Perhaps both Walter Reed and Louis Wilson would have gone on to their successful careers and accom-

plishments if they had never met in St. Paul. But it is also easy to see how they synergized each other in their short time together. With their age differences, Reed can be seen as a mentor to Wilson, but Reed also clearly benefitted from his relationship with Wilson.

Minnesota has had many historic firsts in medicine, including open heart surgery, the external cardiac pacemaker, bone marrow transplantation, and identifying the link between diet and heart disease. Recently, Minnesota has been seen as an incubator for the medical and health care industry—illustrated, for example, by the establishment of Medical Alley in 1984, a global network of health care organizations—and in a sense Reed and Wilson served as an incubator for each other. Reed was frustrated by his commission in the hinterlands of Minnesota; Wilson was just beginning his inquiry into medicine. Their chance encounter and introduction enabled them to invigorate their natural intellectual tendencies. Their mutual work changed both of their lives for the good of all America and indeed the world. □

## Notes

1. William Bennett Bean, “Walter Reed: A Biographical Sketch,” *Archives of Internal Medicine* 134 (Nov. 1974): 871–77.

2. Bertha L. Heilbron, “Walter Reed in Minnesota,” *Minnesota History* 24, no. 3 (Sept. 1943): 207–13.

3. Walter Reed, “The Contagiousness of Erysipelas,” *Boston Medical and Surgical Journal* 126, no. 10 (1892): 237; Walter Reed, “Remarks on the Cholera Spirillum,” *Northwestern Lancet of St. Paul* 13 (May 1, 1893): 161–64.

4. Henry Rose Carter, Philip S. Hench, Jefferson Randolph Kean, Jesse William Lazear, Walter Reed, and US Army, *Philip S. Hench Walter Reed Yellow Fever Collection circa 1800–circa 1998*, bulk 1863–1974.

5. Heilbron, “Walter Reed in Minnesota,” 210; Minutes of the Ramsey County Medical Society, Mar. 27, 1893, 215.

6. Louis B. Wilson, “The Development of Public Health Medicine in Minnesota,” *Minnesota Academy of Science* 5, no. 7 (1936): 4–12; “Echoes of Ninety” (1890 senior class publication), (St. Paul, MN: Central High School, 1890), p. 33, Central High School Records, 131.D.19.10F, MNHS.

7. Wilson, “Development of Public Health Medicine in Minnesota,” 9; Laura Wood Roper, *Walter Reed: Doctor in Uniform* (New York: Julian Messner, 1943).

8. Philip D. Jordan, *The People’s Health: A History of Public Health in Minnesota to 1948* (St. Paul: MNHS, 1953).

9. Wilson, “Development of Public Health Medicine in Minnesota,” 10.

10. Wilson, “Development of Public Health Medicine in Minnesota,” 10; Leonard G. Wilson, *Medical Revolution in Minnesota: A History of the*

*University of Minnesota Medical School* (St. Paul, MN: Midewiwin Press, 1989); Jordan, *The People’s Health*, 80; F. F. Wesbrook, L. B. Wilson, and O. McDaniel, “Studies on the Distribution of Certain Varieties of the Diphtheria Bacillus,” *Public Health Papers and Reports* 25 (1899): 546–56.

11. L. B. Wilson and F. F. Wesbrook, “Preliminary Report on the Serum Diagnosis of Typhoid Fever in an Epidemic during which Typhoid Bacillus Was Isolated from the Public Water Supply,” *British Medical Journal* 2 (1897): 1774–75.; Wilson, *Medical Revolution in Minnesota*, 72.

Images on p. 75: (left) National Library of Medicine, History of Medicine digital collections; (right) courtesy of Mayo Clinic (<https://history.mayoclinic.org/toolkit/contributions-to-medicine/>).



Copyright of **Minnesota History** is the property of the Minnesota Historical Society, and its content may not be copied or emailed to multiple sites or users or posted to a listserv without the copyright holder's express written permission: [contact us](#).

Individuals may print or download articles for personal use.

To request permission for educational or commercial use, [contact us](#). Include the author's name and article title in the body of your message. But first--

If you think you may need permission, here are some guidelines:

#### **Students and researchers**

- You **do not** need permission to quote or paraphrase portions of an article, as long as your work falls within the fair use provision of copyright law. Using information from an article to develop an argument is fair use. Quoting brief pieces of text in an unpublished paper or thesis is fair use. Even quoting in a work to be published can be fair use, depending on the amount quoted. Read about fair use here: <http://www.copyright.gov/fls/fl102.html>
- You **should**, however, always credit the article as a source for your work.

#### **Teachers**

- You **do not** need permission to incorporate parts of an article into a lesson.
- You **do** need permission to assign an article, either by downloading multiple copies or by sending students to the online pdf. There is a small per-copy use fee for assigned reading. [Contact us](#) for more information.

#### **About Illustrations**

- **Minnesota History** credits the sources for illustrations at the end of each article. **Minnesota History** itself does not hold copyright on images and therefore cannot grant permission to reproduce them.
- For information on using illustrations owned by the Minnesota Historical Society, see [MHS Library FAQ](#).