

Mary Mallon and Typhoid Fever  
Emily Sweetland Long

She was born in Cookstown County Tyrone, Ireland on September 23, 1869. Neither she nor her family could have known what was to be her fate. If they had, perhaps she would never have become a cook; perhaps she would never have begun a new life in the United States. But she did. Mary Mallon journeyed to the U.S. in 1883 when she was only a teenager and soon settled with her aunt and uncle in New York City. She was by most accounts a good cook and she had no trouble finding work in the kitchens of New York's well to do.<sup>1</sup> It was here that she would be dubbed "Typhoid Mary."

Mary Mallon worked for at least ten years in these kitchens before she was accused of spreading typhoid fever to the families she had worked for. Undoubtedly Mary Mallon was shocked when she was accused of making people ill. She had never been ill with typhoid fever, how then could she be responsible for the things of which she was accused? This was the question Mallon would put forth to the health authorities of New York City time and time again during her twenty plus years of isolation at the Riverside Hospital on North Brother Island. However, it did not matter how many times Mary Mallon proclaimed her innocence and proclaimed she was healthy, she had become "Typhoid Mary," the "most dangerous woman in New York City." Was she really? We can be quite certain Mallon, along with most of the citizens of New York as well as the entire world, had never heard the term "healthy carrier." The truth is that healthy carriers of typhoid fever were walking the streets of New York City, and not too few of them. However, of all these healthy carriers, Mary was the only one forced into isolation for a significant portion of her life. Mary Mallon's fate was not only to become "Typhoid Mary," but also to become the first known healthy carrier of typhoid fever and an essential specimen for the New York City Health Department.

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<sup>1</sup> Judith Walzer Leavitt, *Typhoid Mary: Captive of the Public's Health*, (Boston: Beacon Press, 1996), 14.

On August 27, 1906 one of Charles Henry Warren's daughters fell ill with typhoid fever at his rented home in Oyster Bay, Long Island. Soon followed two maids, Mrs. Warren, the gardener, and finally another of Warren's daughters. The home was owned by Mr. and Mrs. George Thompson of New York City. The Thompsons were in no hurry to see their house become unrentable and quite quickly hired private investigators to analyze the outbreak. The investigators tested the most likely sources first: the water, milk, and food supplies of the home. It was known by this period in time that in addition to unclean drinking water, milk and raw foods, such as vegetables, fruits, and oysters, were capable of harboring typhoid bacilli.<sup>2</sup> Unable to conclusively prove anything, they determined the water tank was contaminated, most likely due to the dirty, excreta covered boots of the men who had cleaned the tank. This answer was not satisfactory to the Thompsons so they turned to Dr. George A. Soper, a former engineer in the U.S. Army Sanitary Corps.<sup>3</sup> At the time they hired him, Soper was a civil engineer and had become fairly well known for his analysis of typhoid fever epidemics. Soper, like the initial investigators, quickly ruled out milk, oysters from the bay, and other foodstuffs in the home. His next step was to interview all of the household inhabitants. The interviews revealed the Warren family had changed cooks shortly after the first typhoid outbreak. Soper's attention was sparked upon hearing this, and he wanted to know all about this former cook. He learned her name was Mary Mallon, and according to the testimony given she was quite healthy. Soper also learned Mallon had often made a dessert for the family that consisted of ice cream and fresh peaches. Peaches, Soper knew, would make an excellent conductor for typhoid fever. He was quite aware of the dangers of a typhoid carrier or patient preparing uncooked meals for others, and this information made him more suspicious. Despite the claims that she had been healthy, Soper grew increasingly convinced Mary was the culprit. It is quite possible Dr. Soper was one of the few New Yorkers who knew what a healthy carrier was, a point he later claimed was true.<sup>4</sup>

Before we delve further into Mary's story we must understand typhoid fever and the concept of the healthy carrier. Typhoid fever is a water and food borne illness that infects the intestines of those who suffer the illness. Typhoid bacilli enter the body through the mouth, and invade the body through the small intestine. The bacilli then enter the mesenteric lymph glands via Peyer's patches, which are lymphoid tissues on the wall of the small intestine. The bacilli usually infect the lower ileum of the small intestine but can attack the upper portion as well as the large intestine. Once the bacilli have entered the mesenteric lymph glands they multiply during an incubation period and then enter the blood stream, from which point they can enter the other organs,

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2 "Oysters as a Means of Transmitting Typhoid Fever," *Science*, 2 (1895), 49-50.

3 Priscilla Ward, "Cultures and Carriers: 'Typhoid Mary' and the Science of Social Control," *Social Text* 52/53 (1997), 181.

4 Leavitt, *Typhoid Mary*, 14-17.

especially the liver, spleen and rediculo-endothelial system. Those bacilli that do not make it into the liver go through the liver capillaries into the bile cannulae. Here they may multiply again and make their way to the gallbladder. In this location they multiply again and re-invade the intestines. At this point the symptoms of the fever begin, the whole process having taken ten to fourteen days.<sup>5</sup> Typhoid symptoms can include sustained fever, headache, malaise, and constipation (more common) or diarrhea. Following these initial symptoms sufferers often experience chills, loss of appetite and a rash on the abdomen and chest, as well as severe cramps and tenderness. Patients grow increasingly weaker and can suffer complications. One common complication is the inflammation of the lungs, leading to pneumonia or bronchitis during the early stages of typhoid fever. This can cause re-infection, also known as “superinfection” of the intestines. This “superinfection” can lead to perforation and hemorrhage, two other major complications of the disease.<sup>6</sup>

Modern medicine calls for antibiotics as treatment for typhoid patients, but that venue was not available until the 1940s, and there was little that could be done for typhoid patients during Mary Mallon's time. In 1904 the *American Journal of Nursing* advised making sure patients had plenty of rest, were kept in a light and cheerful room, cleaning bed linens as well as the patient several times a week, and giving the patient nourishment, despite any resistance.<sup>7</sup> The fatality rate of the disease in Mary Mallon's time was around ten percent.<sup>8</sup>

Thomas Willis described typhoid fever in 1659, and was the first person to separate it from the diseases to which it is similar. He was not, however, the first person to record a typhoid-like disease. The Greeks quite possibly were the first to write of the disease. Hippocrates described a fever that was typhoid-like and wrote of a Roman physician, Antonius Musa, who treated the Emperor Augustus with cold baths when he fell ill with the fever.<sup>9</sup> It has even been speculated that Alexander the Great died of typhoid fever in Babylon, most likely where the disease began.<sup>10</sup> When Willis, an English physician, was describing the affliction he was writing about an epidemic among the parliamentary troops stationed in India.<sup>11</sup> Willis may have been correct in identifying a new disease, but he did not give it a name. That was left for the nineteenth century when a French physician by the name of Bretonneau recognized the disease as distinct and gave it the name of “dothineteritis.”<sup>12</sup> Fortunately Bretonneau's colleague, the popular French professor of medicine

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5 R.L. Huckstep, *Typhoid Fever and Other Salmonella Infections*, (Edinburgh: E.S. Livingstone, LTD., 1962), 35-36.

6 Geoffrey Edsall, “Typhoid Fever,” *The American Journal of Nursing* 59 (1959), 989.

7 Mary J. Reynolds, “Nursing of A Typhoid,” *The American Journal of Nursing* 4 (1904), 276-279.

8 Edsall, “Typhoid Fever,” 990.

9 Huckstep, *Typhoid Fever*, 4.

10 Edsall, “Typhoid Fever,” 989.

11 Harry Wain, *A History of Preventative Medicine*, (Springfield, IL: Charles C. Thomas-Publisher, 1970), 284.

12 Edsall, “Typhoid Fever,” 990.

Charles Alexander Louis, changed the name to “typhoid fever,” which was a combination of the Greek word *typhus*, which means stuporous or clouded, and *eidōs* which means like. He chose this name because the typhoid patient commonly falls under a stupor, and because it was the only name to which others had not objected.<sup>13</sup> Knowledge of typhoid fever began accumulating. In 1824 Nathan Smith, a professor at Yale, discovered that typhoid fever is contagious. In 1836 William Gerhard drew the distinction between typhoid and typhus, which until this point had been considered one disease. This was further confirmed by Sir William Jenner in 1850. Soon after Jenner's work, Austin Flint illustrated the contagious nature of typhoid with a story of a community in which every family was touched by typhoid fever except for the one family in the community that was not using the well because of a quarrel.<sup>14</sup> William Budd, a nineteenth century English country doctor, soon noted that typhoid was spread through the feces, and that water and milk were excellent at transmitting the fever.<sup>15</sup> Despite these claims many, including Flint, believed drains in the home as well as sewer vapors were the root of illness, rather than through food and water contaminated by infected feces.

The salmonella typhi bacillus, the causative agent of typhoid fever, was finally discovered by Klebs and Eberth, independently, in 1880. The discovery led to the culture of the bacilli in the laboratory, and that it did exist in the feces, as well as the urine, blood and bile of those infected, confirming Budd's claims.<sup>16</sup> It would later be discovered that the typhoid bacilli also live in sweat, mother's milk, and the spleen. This information indicates how easy it was for a typhoid patient or carrier to spread the illness to others, and how easily drinking water could become infected.<sup>17</sup>

The discovery that typhoid was caused by a bacteria, coupled with the fact that typhoid bacilli lives in feces, led to measures to clean up water systems. Next to vaccination and knowledge of healthy carriers, water filtration was one of the greatest measures taken in the battle against typhoid fever. A filter for water systems was created in the 1890s and quickly proved to be effective in battling typhoid epidemics. Cities that sent untreated water through their pipes were the most likely to suffer typhoid epidemics. These cities only needed to recognize the problem and do something about it. Quite often, however, it took many epidemics to convince both legislators and taxpayers to spend the money on water filtration. Once they did, however, the results spoke for themselves.<sup>18</sup> Philadelphia began filtering its water systems at the beginning of the 1900s, in

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13 Wain, “A History,” 989.

14 Edsall, “Typhoid Fever,” 990.

15 Robert Moorhead, “William Budd and Typhoid Fever,” *Journal of the Royal Society of Medicine* 95 (2002), 561-564.

16 Edsall, “Typhoid Fever,” 990.

17 Joseph Chapman Doane, “Typhoid Fever,” *The American Journal of Nursing*, 27 (1927), 712.

18 Judith Walzer Leavitt, “‘Typhoid Mary’ Strikes Back: Bacteriological Theory and Practice in Early Twentieth-Century Public Health,” *Isis* 83 (1992), 610.

part largely because of the threat of typhoid fever.<sup>19</sup> The installation of filtration equipment had begun in 1902. At that time the death rate from typhoid fever in Philadelphia was forty-five to seventy-five per 100,000. The filtration was complete in 1911, and chlorination was complete in 1913. After this point the rate dropped to eight or less per 100,000.<sup>20</sup> The mortality rate of typhoid fever per 100,000 in the United States was 31.3 in 1900, and had decreased to 22.5 by 1910. This was largely due to the clean up of water systems.<sup>21</sup>

During the nineteenth century it was common belief that dirt was the cause of disease. Bacteriology changed this.<sup>22</sup> A leading proponent of bacteriology was Charles V. Chapin, the superintendent of health of Providence, Rhode Island. He was at the forefront of the bacteriology movement, and in his overzealousness claimed that it did not matter how dirty the streets were, bacteria caused typhoid.<sup>23</sup> Chapin claimed sanitation was unnecessary because it would "make no demonstrable difference in a city's mortality whether its streets are clean or not, whether the garbage is removed promptly or allowed to accumulate, or whether it has a plumbing law."<sup>24</sup> Fortunately today we understand that sanitation as well as bacteriology is needed to keep healthy. Imagine if we had heeded Chapin's words and discontinued trash disposal. Chapin was correct in his ideas on bacteriology, however. He recognized the need to understand what causes diseases to protect ourselves. He said:

Contact with the fresh secretions or excretions, of human beings, is the most important source of infection for most of our common contagious diseases. By turning the face from the coughing and loud talking of our neighbors; by putting nothing in the mouth except clean food and drink; by never putting the fingers in the mouth, or nose; most contagious diseases can be avoided. Wash the hands well before the eating and always after the use of the toilet. Teach this to the children by precept and especially by example.<sup>25</sup>

This understanding of bacteria played a significant role in the idea of the healthy carrier. In 1884 Friedrich Loeffler, a German bacteriologist, put forth the idea that there were healthy carriers of diphtheria. This was confirmed in 1893 by William H. Park and A.L. Beebe. They concluded through their experiments that one percent of New York City's inhabitants had diphtheria

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19 Michael P. McCarthy, *Typhoid and the Politics of Public Health in Nineteenth-Century Philadelphia*, (Philadelphia: American Philosophical Society, 1987), ix.

20 Edsall, "Typhoid Fever," 990.

21 H.C. Batson, *Typhoid Fever Prophylaxis By Active Immunization*, (Washington D.C.: U.S. Government Printing Office, 1949), 5.

22 Leavitt, "Typhoid Mary' Strikes Back," 612-613.

23 Ibid, 610-611.

24 Leavitt, *Typhoid Mary*, 24.

25 Leavitt, "Typhoid Mary' Strikes Back," 611.

bacilli in their throats. In 1893 Robert Koch, a German bacteriologist, suggested cholera also had healthy carriers. This was later proved to be true.<sup>26</sup> Robert Koch was the same man that declared in 1902 that a healthy person could potentially spread typhoid fever. This was also proven to be true, and accepted among the scientific world, however this fact was still largely unknown to everyone else.<sup>27</sup> Nevertheless, the discovery by Koch would be instrumental in preventing future typhoid epidemics.

To further understand Mary's dilemma we must fully understand the workings of a typhoid carrier. In the typhoid patient generally after ten or twelve days the typhoid bacillus disappears from the body. In the incubated form it may take weeks. In the healthy carrier the bacilli may last a lifetime.<sup>28</sup> In healthy carriers the bacilli manages to live in the tissues, most commonly the gallbladder, after the carrier is no longer ill.<sup>29</sup> There are three types of these healthy carriers:

1. Chronic carriers who have had an attack of the disease and did not realize it. Mary Mallon may have been one of these carriers; perhaps suffering symptoms she thought were the flu but were really typhoid fever.
2. Carriers who are in an incubation stage and will eventually become sick with the disease and pass it through their system.
3. True healthy carriers who have not suffered from the disease they carry and likely never will. Mallon was most likely a true healthy carrier.<sup>30</sup>

Diphtheria, influenza, meningitis, pneumonic plague, dysentery, and cholera exhibit some of these same characteristics.<sup>31</sup> In 1912 healthy typhoid carriers numbered between two and five percent and it was estimated three percent of those that contracted the bacilli would become carriers. It was also found that women were more likely to be carriers. This makes sense for Mary Mallon was both a woman and nearing middle age.<sup>32</sup> Most importantly, the discovery of a healthy carrier meant the discovery of the source of a typhoid epidemic.<sup>33</sup> Mary Mallon was to be the first identified instance of this occurrence.<sup>34</sup> Chapin was as involved with bacteriology as he was with the healthy carriers. He understood the threat of a healthy carrier, and explained it this way:

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26 Ibid., 613.

27 Edsall, "Typhoid Fever," 991.

28 Frederick G. Novy, "Disease Carriers," *Science* 36 (1912), 3-4.

29 Edsall, "Typhoid Fever," 991.

30 Novy, "Disease Carriers," 2.

31 Ibid., 5.

32 Ibid., 4-5.

33 J. Andrew Mendelsohn, "Typhoid Mary" Strikes Again: The Social and the Scientific in the Making of Modern Public Health," *Isis* 86 (1995), 274.

34 Wald, "Cultures and Carriers," 181.

Neither you nor I, nor the Board of Health, know where these [carriers and missed cases] are. The occupant of the next seat may, for all one knows, be a diphtheria carrier, so may the sales lady who ties up the package, the conductor who gives the transfer, or the express man who leaves a parcel at the door. The dirty man hanging on the car strap may be a typhoid carrier, or it may be that the fashionably dressed woman who used it just before was infected with some loathsome disease. If these people were sick in bed we would avoid them. As it is we cannot. Science has shown this new danger.<sup>35</sup>

George Soper was convinced that Mary Mallon was one of these healthy carriers and set off to find her. He contacted the employment agencies she had been to and was able to piece together, through what is known as “shoe leather epidemiology” which eight families Mallon had worked for since 1897. What Soper found was astonishing; seven of the eight families Mallon had worked for had instances of typhoid fever. He put together this list:

1. During the summer of 1909 Mallon was working for a family in Mamaroneck, NY. A male visitor came to the home and fell ill shortly after his arrival. It was later determined he had come into contact with the disease before entering the home.
2. During the winter of 1901-1902 Mallon was working for a family in New York City. The launderess became ill soon after Mary's arrival. There was no investigation.
3. Mallon was working in Bar Harbor, Maine, during the summer of 1902, when seven of the nine people in the home fell ill. She stayed on to help nurse the ill, for which her employer was very grateful. Investigators determined the typhoid had been brought in by the footman.
4. In the summer of 1904 Mallon was working in Sands Point, NY. She and the other servants lived in a separate home from the family. Four of the servants fell ill. Investigators determined the launderess had brought the fever in.
5. During the summer of 1906 Mallon was working for the Warren's in Oyster Bay. This is where Soper first heard the name “Mary Mallon.”
6. Mallon was working in Tuxedo Park, NY, during the autumn of 1906. The launderess became ill, cause undetermined.
7. In the winter of 1907 Mallon was working in New York City. The chambermaid fell ill first, followed by a daughter who became ill and died. This was the home in which Soper finally tracked down

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35 Leavitt, *Typhoid Mary*, 25.

Mary and conducted their first interview.<sup>36</sup>

In all Soper identified twenty-two cases of typhoid fever connected to Mary between 1900 and 1907. At times, however, he claimed there were twenty-six, and other sources report there were up to forty-seven. It is estimated that three people died as a result. During this same period in New York City 3,000 to 4,500 new cases were reported, making the twenty-two or so cases attributed to Mallon a mere pittance. However, it can only be assumed that Mary was responsible for all the cases Soper pinned to her name.<sup>37</sup> The discovery of a healthy carrier could help investigators determine what had caused an outbreak, but there was no scientific method to prove beyond a doubt that the carrier found was the cause for every case. Any number of the people who had come into contact with Mary Mallon and fallen ill with typhoid fever could have contracted the disease elsewhere, whether through contaminated water or another person.

George Soper finally tracked Mary Mallon down in March 1907 at the New York City home in which she was employed. To the healthy Mallon, Soper came out of nowhere with wild accusations that through her cooking she had brought disease and death. If that was not enough, he demanded, not asked, but demanded samples of her feces, urine, and blood. Mary was quite confused and became livid, dismissing Soper from the house. Soper later said:

I had my first talk with Mary in the kitchen of this house ... I was as diplomatic as possible, but I had to say I suspected her of making people sick and that I wanted specimens of her urine, feces, and blood. It did not take Mary long to react to this suggestion. She seized a carving fork and advanced in my direction. I passed rapidly down the long hall, through the tall iron gate ... and to the sidewalk. I felt rather lucky to escape.<sup>38</sup>

So, Mallon rid herself of Soper the first time. Next, he went to Mary's home. She insisted she was healthy and had never suffered from typhoid, and threw him out once again. Because Soper could not get the samples he needed directly from Mallon he was compelled to present evidence against her to Hermann Biggs, medical officer of the New York City Health Department. This was done on March 11, 1907, and Biggs agreed that one Mary Mallon was indeed a threat to the citizens of New York and authorized the department to go collect samples.<sup>39</sup>

The department sent Dr. S. Josephine Baker to do the task. Dr. Baker's own father had died of typhoid fever when she was sixteen and she was

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36 Ibid., 16-17.

37 Ibid., 17-19.

38 Ibid., 43.

39 Ibid., 44.



compelled to get an education in medicine. She did just that in a time when few women were privy to the medical world. Her focus was public health and poverty, but for a time she worked as the health inspector for New York City. This was her post when she was sent to see Mary Mallon and collect specimens to see if she was in fact the menace Soper envisioned her to be. As it happened Mallon was no more ready to give samples to Baker as she was to Soper. Upon Mary's refusal Dr. Baker felt she had no choice but to call in the police. Her account of the episode goes like this:

She came out fighting and swearing, both of which she could do with appalling vigor. I made another effort to talk to her sensibly and asked her again to let me have the specimens, but it was of no use. By that time she was convinced that the law was wantonly persecuting her, when she had done nothing wrong. She knew she had never had typhoid fever; she was maniacal in her integrity. There was nothing I could do but take her with us. The policemen lifted her into the ambulance and I literally sat on her all the way to the hospital; it was like being in a cage with an angry lion.<sup>40</sup>

Mary was taken to Willard Parker hospital, the usual facility for contagious diseases. Mary's samples were taken, and Soper finally received his confirmation. Mary Mallon was carrying salmonella typhi bacillus, despite never having suffered the disease. This was a landmark for the health department of New York City. They had the first known person to harbor typhoid bacilli in their hands; they were not going to let her get away so fast. Mallon was kept in health department custody, and eventually she was moved to an isolation cottage on the grounds of the Riverside Hospital on North Brother Island, New York. Riverside Hospital was home to many contagious tuberculosis patients, and seemed the most appropriate location for a typhoid carrier. However, not suffering from tuberculosis, she was kept away from them. It was assumed by Dr. Park of the Board of Health that she was being kept with other typhoid patients. Mary said "I am not segregated with the typhoid patients. There is nobody on this island that has typhoid."<sup>41</sup> It should be noted that Mallon said there was no one on the island with typhoid, rather than there is no one *else* with typhoid, indicating her conviction that she was healthy. Since she was the only one at the hospital for typhoid fever, and that she could not be housed with the tuberculosis patients, she was kept in isolation. She would not be leaving soon. This would be her "home" for the next few years.

Mary Mallon was taken to the hospital on March 20, 1907, and from that day until her release her feces received endless scrutiny from the

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40 Ibid., 46.

41 Letter written by Mary Mallon to her attorney George Francis O'Neill in 1909, from <http://www.pbs.org/wgbh/nova/typhoid/letter.html>, March 6, 2008.

laboratory.<sup>42</sup> The laboratory in which Mallon's specimens were continually examined was the brainchild of Hermann Biggs. He created the lab as part of the Division of Pathology, Bacteriology, and Disinfection with the health department. He hired William H. Park to organize the bacteriological laboratory and Park remained its director from 1893-1936. "Typhoid Mary" was their most important work for many years.<sup>43</sup> During the twenty-eight months Mallon was in isolation, 163 samples were taken and tested in Park's lab. This averaged out to more than one a week. One hundred and twenty of the 163 samples taken tested positive for salmonella typhi bacillus. These results indicated that Mallon was an intermittent carrier.<sup>44</sup>

Mallon was not sitting idly by while her specimens were being tested. She was sending out her specimens to the private company of Ferguson Laboratories. Mr. A. Briehof, a friend of Mary's whom she had lived with in the past, collected the specimens from Mary and delivered them to the lab. The tests run by George Ferguson at his lab did not show that Mallon had typhoid in her system. However, the specimens were not fresh when they reached the private lab, Mallon was a proven intermittent carrier, and the Ferguson lab did only ten tests compared with the 163 conducted by the state. The evidence collected by the health department would prove to be damning in Mary Mallon's case, whereas the tests conducted by Ferguson Laboratories would be largely neglected.

While Mallon was in the custody of the health department there were attempts to "cure" her of her status of carrier. The doctors at the hospital gave her hexamethylenemine in increasing doses each day, but it had no affect. Hexamethylenemine, more commonly known as urotropin, was used for kidney and bladder troubles. Mary was none too pleased to be given this drug. She said:

Dr. Wilson ordered me urotropin. I got that on and off for a year. Sometimes they had it, and sometimes they did not. I took the urotropin for about three months all told during the whole year. If I should have continued [it], it would certainly have killed me for it was very severe. Everyone knows who is acquainted in any kind of medicine that it's used for kidney trouble.<sup>45</sup>

They also tried controlling her diet and giving her a mild laxative, which had very minor results. For the time being doctors were at a loss as to how to cure a healthy carrier.

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42 Leavitt, "Typhoid Mary' Strikes Back," 618.

43 Ibid., 618.

44 Leavitt, *Typhoid Mary*, 31-32.

45 Letter written by Mary Mallon to her attorney, George Francis O'Neill, from <http://www.pbs.org/wgbh/nova/typhoid/letter.html>, March 6, 2008.

In January of 1908 Mary believed her release was imminent. However, when asked what her plans were after her release, her honest response was not what the authorities wanted to hear. She wrote:

When in January [1908] they were about to discharge me, when the resident physician came to me and asked me where was I going when I got out of here, naturally I said to N.Y., so there was a stop put to my getting out of here. Then the supervising nurse told me I was a hopeless case, and if I'd write to Dr. Darlington and tell him I'd go to my sisters in Connecticut. Now I have no sister in that state or any other in the U.S. Then in April a friend of mine went to Dr. Darlington and asked him when I was to get away. He replied "That woman is all right now, and she is a very expensive woman, but I cannot let her go myself. The Board has to sit. Come around Saturday." When he did, Dr. Darlington told this man "I've nothing more to do with this woman. Go to Dr. Studdiford."<sup>46</sup>

After receiving quite the go around, according to Mallon, Dr. Studdiford replied that "I cannot let that woman go, and all the people that she gave the typhoid to and so many deaths occurred in the families she was with." So, Mallon was not to be released, not so long as the authorities believed she was really a threat. Instead of discharging her they suggested she should go under the knife. In true Mary Mallon style she refused. This is Mary's account of the attempt to send her to surgery

Dr. Studiford said to this man [Mallon's friend; perhaps Mr. Briehof] go and ask Mary Mallon & enveigle [sic] her to have an Operation performed to have her Gall Bladder removed. She'll have the best surgeon in town to do the cutting. I said no [.] no knife will be put on me I've nothing the matter with my gall bladder. Dr. Wilson asked me the very same question. I also told him no then he replied it might not do you any good also the supervising nurse asked me to have an operation performed. I also told her no & she made the remark would it not be better for you to have it done than remain here I told her no.<sup>47</sup>

Mary was quite correct in refusing the surgery. Besides posing a huge risk of infection, its track record for "curing" the healthy was less than stellar. The health department eventually confessed that it had followed five carriers who had agreed to the surgery and not one of them had ceased to shed typhoid bacilli.<sup>48</sup>

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46 Ibid.

47 Ibid.

48 Leavitt, *Typhoid Mary*, 35.

Judith Walzer Leavitt suggests the health officials were asking the wrong questions regarding Mary Mallon. They were intent on finding how to stop her from emitting bacilli, rather than how to keep her from cooking. They should have been teaching her proper hygiene and helping her learn new skills. Milton L. Rosenau of the U.S. Public Health Service's hygienic laboratory was thoroughly opposed to Mary Mallon's isolation. He said "it is not necessary to imprison the bacillus carrier. It is sufficient to restrict the activities of such an individual."<sup>49</sup> This should have been the route taken in Mary's case. But, the authorities made no effort to train Mary Mallon in a new skill, and how good hygiene would keep her from spreading the disease. Mary Mallon was quite certain herself that the health officials did not know what they were doing. She wrote:

There is a visiting doctor who came here in October. He did take quite an interest in me. He really thought I liked it here, that I did not care for my freedom. He asked me if I'd take some medicine if he brought it to me. I said I would, so he brought me some Anti Autotox and some pills then. Dr. Wilson had already ordered me brewer's yeast. At first I would not take it for I'm a little afraid of the people, and I have a good right for when I came to the Department they said they were in my [intestinal] tract. Later another said they were in the muscles of my bowels. And latterly they thought of the gallbladder.<sup>50</sup>

This passage indicates that indeed the authorities were at a loss to explain how the healthy carrier operated. In many ways Mallon was a test case for them. They could use her to figure out just where the typhoid was in her system, and how to rid her of it. Unfortunately they never asked her if she would consent to the constant poking and prodding. They had the lab rat in the cage, they were not eager to let it go.

In 1909, after two years in her isolation cottage, and endless testing of her samples, Mary Mallon sued for her release. Her attorney was George Francis O'Neill, a young attorney who had only recently been admitted to the bar of New York state. On June 29, 1909 Mary appeared before the New York Supreme Court. Judges Mitchell Erlanger and Leonard Giegerich would decide whether or not she should be released.<sup>51</sup> The lab tests formed the basis for the health department's defense. Mallon's lawyer argued, on the other hand, that she had never been sick with typhoid fever so she could not be the menace they called her. More importantly O'Neill argued that to keep Mary Mallon in the custody of the health department violated her constitutional right to due

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49 Leavitt, "'Typhoid Mary' Strikes Back,' 621-622.

50 Letter written by Mary Mallon to her attorney, George Francis O'Neill, from <http://www.pbs.org/wgbh/nova/typhoid/letter.html>, March 6, 2008.

51 W.D. Mason, "Typhoid Mary," *Science* 30 (1909), 117-118.

process. He claimed the health department had not followed protocol in the case of Mary Mallon. O'Neill made this statement; "the said Mary Mallon is being confined without commitment or any other order of any Court within the state of New York, or that of any person or authority having power to restrain her." Two years later he said of Mary's situation:

It is quite a problem if a municipality can, without legal warrant, or due process of law, clap some one in jail upon the word of some medical man. If the Board of Health can act this way with any one who is alleged to be a germ carrier, yet who never suffered from the disease, then it can put thousands upon thousands of persons who suffered at some time or another from typhoid fever in confinement.<sup>52</sup>

Mary had received no day in court before she was sentenced to her isolation cottage at North Brother Island. Even George Soper could not argue with this logic, himself having said "she was held without being given a hearing; she was apparently under life sentence; it was contrary to the Constitution of the United States to hold her under the circumstances." This was the truth, but unfortunately for Mary Mallon the court was trying to determine if the health department had the right to detain her, rather than if they had apprehended her within her rights.<sup>53</sup>

Although not front page news, the media did cover the trial and Mallon's claims of injustice. *The New York Times* reported that the health department was holding Mary because they believed that "she had become a menace to every person with whom she came into contact, for the reason that, although immune from typhoid, she possessed the power of communicating the fever to others." The paper also published Mallon's side in which she "flatly denied, through her lawyer, that she had the power of communicating typhoid" although she admitted that some of the households she worked in had fallen ill with the fever. She was quick to blame unhealthy water sources and to point out that not every household had fallen ill. She said "Why, I was a cook for Mr. Stebbine's family and other families, too and nobody fell ill while I was there." Also reported by the *Times* was Mary's account of life on the island. She said she was "treated like a leper and was compelled to occupy a house by herself, her only companion a dog. She stated, "food was brought to her three times a day by a nurse, who left it at the door and then made a hurried departure."<sup>54</sup> While this particular article is less biased, neither condemning nor defending Mallon, others were more vindictive. In the July 1, 1909 edition of the *New York Times* one article claimed if it was true that

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52 Leavitt, *Typhoid Mary*, 83.

53 *Ibid.*, 81-82.

54 "Wants to Leave the Island: 'Typhoid Mary' Declares the Health Board is Holding Her Illegally," *The New York Times*, June 30, 1909.

twenty-eight cases of typhoid fever have followed her successive engagements as cook in various families, and that she is still a carrier of virulent typhoid germs, obviously the first proceeding is not to set her free. She should in her own interest submit to examination and to operative treatment, if that be found necessary.

The article goes on to state Mallon must receive a certificate of clean health and “that she is not a carrier of disease to persons who are not immune.” While the article does not label Mallon as a murderer, it does not take into account that an operation might not help Mary, or the fact that she was being held without due process.<sup>55</sup> Indeed in the press Mary was painted as a victim as much as a threat. But would that have any affect on her fate in court?

The court had heard the results of the numerous tests upon Mallon’s feces, they had heard Mallon’s claims that she was not ill. Finally, Dr. Fred S. Westmoreland, the resident physician at Riverside Hospital on North Brother Island, gave his suggestion to the judges:

A bacteriological examination revealed the fact that fully thirty percent of the bacteria voided with the feces were of typhoid bacilli; the urine was negative ... Weekly examination of the stools have usually revealed large numbers of bacilli... In view of the foregoing and owing to the large quantities of typhoid bacilli existing in the alimentary tract, or gallbladder of the patient and her occupation as a cook or the fact that she may at any time come in contact with people wherein they would be likely to be infected with the typhoid bacilli, the Department of Health concluded that the patient would be a dangerous person and a constant menace to the public health to be at large; and, consequently, ... decided after careful consideration and acting upon their examination of the patient, to place her in a contagious hospital and isolate her from the general public.<sup>56</sup>

Despite the arguments for Mary Mallon’s rights, and the sympathy she had gained during her trial, the judges were swayed by the lab results and ruled in favor of the health department saying “that said petitioner, Mary Mallon, be and she hereby is remanded to the custody of the Board of Health of the City of New York.”<sup>57</sup> So back to her “cage” she went, destined to isolation for the rest of her days. Then, in 1910 Ernst J. Lederle was named the new health commissioner. Lederle was a man who sympathized with Mary and her unusual predicament. He released Mallon in 1910 with the understanding she would not

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55 “Healthy Disease Spreaders,” *The New York Times*, July 1, 1909.

56 Leavitt, “Typhoid Mary” Strikes Back,” 619-620.

57 *Ibid.*, 620.

work as a cook again. Mary Mallon, with the exception of her attempt to sue the city for damages in 1911 (she lost), disappeared for five years.

Mary Mallon was the first discovered healthy carrier, but she was certainly not the only one. The city recognized that people carrying the typhoid bacillus were walking the streets of New York City, and they were eager to find them. Not to imprison them, because they recognized this was hardly a likely solution (it was too expensive and no citizen would respond well to a massive isolation of a portion of the population), but to educate them about their ailment and to teach them proper hygiene. The health department had two methods for locating healthy carriers. The first method was the reporting by physicians of healthy patients shedding the typhoid bacilli. The second method was the investigation of individual typhoid outbreaks, the same way Mary Mallon was discovered. Seventy-five percent of carriers were discovered by the second method between 1911 and 1932. Both of the methods were flawed, however. The first method was flawed because physicians were reluctant to stigmatize carriers by reporting to the health department their condition. The second method was flawed because not all carriers were making people sick. In general, unless they were cooking for someone, it was difficult to make someone ill. A health carrier could work in the factory and never pass on the disease, but working in the kitchen, like Mary Mallon, was a sure fire way to pass on the bacilli. Typhoid continued to be a problem.

In 1887 Benmar and Peiper, and Chantemesse and Widal discovered that by injecting mice with sterilized cultures they could protect them from typhoid organisms. In 1896 Pfeiffer and Kolle published a report on the experimental vaccination of thirteen people. The credit of experimental human vaccination, however, generally goes to Wright who in 1896 inoculated two Indian Medical Service Officers with killed typhoid cultures. He then injected live typhoid organisms into one of the volunteers. The officer did not fall ill, proving typhoid inoculation was possible. The first large scale inoculation was done in the British Army in India and South Africa during the Boer War. Those immunized experienced 50 percent fewer typhoid breakouts than the unimmunized. The United States Army adopted general vaccination on a voluntary basis in March of 1909. During the first year fewer than 1,000 were vaccinated, but at the end of 1910 approximately fifteen percent of the army had been inoculated. In December 1911 typhoid vaccination was made mandatory for all personnel in the U.S. Navy.<sup>58</sup> It was also the first year the typhoid vaccine was made available to civilians.<sup>59</sup> In New York City the typhoid fever death rate per 1,000 went from .12 in 1911 to .04 in 1916.<sup>60</sup> Indeed the typhoid vaccination was a breakthrough in the typhoid problem of New York City as well as the rest of the world. It would not, however, do anything to help the plight of the healthy carriers.

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58 Batson, *Typhoid Fever Prophylaxis*, 1-4.

59 Leavitt, *Typhoid Mary*, 18.

60 Batson, *Typhoid Fever Prophylaxis*, 14.

The health officials of New York City were still trying to figure out the carrier problem. Most did not advocate the isolation of all carriers. In 1910 Chapin said:

There certainly would be most energetic opposition on the part of the public, which probably would ultimately be sustained by the courts. The health officer who attempted to isolate convalescents until bacilli were no longer found in their urine, would be in an awkward position if he attempted to isolate all chronic carriers indefinitely...To attempt to isolate 6,000 [new] carriers [each year] would of course be futile ... To isolate the small fraction of carriers who can be discovered is practically useless, and therefore unjust. It may be, and probably is wise to regulate the life of such carriers as may be discovered, and at times to forbid their engaging in certain occupations, such as those of cook, waitress and milk dealer.<sup>61</sup>

It would, of course, have been absurd to round all of the healthy carriers up and ship them off to their own island. In 1909 the *New York Times* published a letter claiming it was wrong to label Mary Mallon “Typhoid Mary” and what it would be like if an island was created for others like her:

If one unfortunate woman must be labeled “Typhoid Mary,” why not send her other companions? Start a colony on some unpleasant island, call it “Uncle Sam’s suspects,” there collect Measles Sammy, Tonsillitis Joseph, Scarlet Fever Sally, Mumps Matilda, and Meningitis Matthew. Add Typhoid Mary, request the sterilized prayers of all religionized germ fanatics, and then leave the United States to enjoy the glorious freedom of the American Flag under a medical monarchy.<sup>62</sup>

It would have been highly improbable to imprison all people of this affliction, and so there was not a mass quarantine of those unfortunate enough to be carriers. They were put on a list, advised to keep clean, and not to cook for other people. Some even had their income subsidized if they had trouble finding work. In 1915 the city began testing all of those who wished to go into the food industry. If they did not have the bacilli in their feces, urine, and blood they were given a certificate and allowed to work. This was highly ineffective, first because someone could be certified one year and pick up the disease the next year, second because once again doctors were reluctant to report their patients. It has been suggested there was class discrimination because those tested, cooks, waitresses, etcetera were typically of a lower class.<sup>63</sup> This may have been true,

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61 Mendelsohn, “‘Typhoid Mary’ Strikes Again,” 275.

62 Letter to the Editor, *New York Times*, July 2, 1909.

63 Mendelsohn, “‘Typhoid Mary’ Strikes Again,” 227.



but it was also true that these workers were the most likely to spread the bacilli, and the city felt they must be tested.

Mary Mallon was re-discovered in March of 1915 when there was a large typhoid outbreak at the Sloan Maternity Hospital in New York City. It seemed she had been employed at the hospital since November of 1914 under the name of Mary Brown. There were twenty-five cases in this instance. She was taken into isolation once again; this time she would be held there for the remainder of her life.<sup>64</sup> Some argue that Mallon broke her promise to stay out of kitchens and so deserved to be incarcerated for a second time.<sup>65</sup> Indeed Mallon had said she would not cook anymore, but one must look at all of the facts. Mary Mallon had been released in 1910 and given no real assistance from the state. Lederle had helped her to find work in a laundry, but a laundress's income was much lower than the income of a cook, and it was not long before Mary was back in the kitchens of New York City, and why not? She never truly believed she was a threat. She had never been sick. If she had even the slightest inkling, she perhaps would have left the city, perhaps the state. She could have gone anywhere else and never be heard of again. But she did not. She stayed and was captured once more.

Mary Mallon stayed on North Brother Island from her apprehension in 1915 until her death in 1938. That is twenty-three years of isolation, with only a dog to keep her company. While she was there Alphonse Contils of New York City made some mistakes too. He was a healthy carrier who owned a bakery. In 1924 he was taken before a judge because he had broken an agreement that he would not handle food in his restaurant. The judge found him guilty, but was reluctant to lock him up. He said "I am thoroughly impressed with extreme danger from these typhoid carriers, particularly when they are handling food. I could not legally sentence this man to jail on account of his health..."<sup>66</sup> Meanwhile Mary Mallon was still in isolation on North Brother Island. This is how it would be for the remainder of her life. Other typhoid carriers would be free, given assistance when they needed it, and living a somewhat normal life. Mary Mallon was never given the chance. She watched as New York City gradually decreased their testing of those going into the food industries, as the overall grip on carriers began to loosen.<sup>67</sup> She was subjected to the analysis of her feces once more, although the record keeping of these analyses was very poor. Most likely she was continually tested so health officials could prove she needed to stay isolated. Mallon did enjoy some privileges in her isolation. In March of 1918 she was employed by the city as a Riverside Hospital helper. That same year she was granted off-island privileges and day trips for shopping. Between the years of 1925 and 1932 she worked in the Riverside Hospital

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64 Leavitt, *Typhoid Mary*, 20-21.

65 Mendelsohn, "Typhoid Mary' Strikes Again," 272.

66 Leavitt, *Typhoid Mary*, 120.

67 Mendelsohn, "Typhoid Mary' Strikes Back," 274.

laboratory. On December 4, 1932, however, she suffered a stroke that rendered her completely bedridden, and her little freedoms were over.<sup>68</sup>

Mary Mallon died on November 11, 1938. She died not of the typhoid that had cursed her life, but rather of pneumonia. After more than twenty years on the island she was cemented as “Typhoid Mary.” The day after her death the paper reported that “Typhoid Mary’ Dies of A Stroke at 68.” The *New York Times* gave an account of her life as “Typhoid Mary,” giving a brief description of her initial incarceration, her appeal for her release, and her short period of freedom. In general the paper was accurate, but made a few errors in her history saying, for instance, that she had fled her accuser when he came to collect samples, when in fact she had proclaimed she was healthy and chased him out of the house with a carving fork. The final passage of the article reads “Although she fought isolation for many years, she finally adopted a philosophic attitude and tried to make the best of her cloistered existence.”<sup>69</sup> In the end Mary did what she had to do to survive. She adapted and lived her life to the best of her ability, despite the hard hand she had been dealt.

Mary Mallon had spent more than twenty years in isolation on North Brother Island. She had been given the name of “Typhoid Mary” and lost the freedoms that so many of us enjoy. All throughout her ordeal she maintained not only her innocence, but that she was healthy. There have been several suggestions as to why she was kept in captivity for so long while others went free. The most common is that she broke the rules when she returned to cooking, and proved she could not be trusted. Another is that her constant refusal to accept she had typhoid bacilli in her system was used against her to show what a menace she was. A better explanation is that Mary Mallon and her supporters had claimed for so long that she was innocent, and George Soper and his supporters claimed equally as long that she was a threat, and neither side wanted to back down, no matter the cost to Mary Mallon. Even when other carriers were freed and when typhoid began to be less of a threat, neither side would compromise, and she was kept in isolation. I believe Mary Mallon was a lab rat. She was the first healthy typhoid carrier apprehended; she was single, a woman, and an Irish immigrant with little family. She proved to be an ideal specimen for furthering the knowledge not only of typhoid fever but of healthy carriers. Was it worth the incarceration of this woman? Today it is agreed it was not. In our age typhoid is no longer a threat in the United States. It is, however, still alive in third world nations who cannot afford vaccinations and cleaner water systems. In Mary Mallon’s time it was, however, so much of a threat that she was locked away forever, doomed to become “Typhoid Mary.”

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68 Leavitt, *Typhoid Mary*, 225.

69 “Typhoid Mary Dies,” *The New York Times*, November 12, 1938.