

The Irascible Ignaz Semmelweis

P. Reany

February 24, 2020

Abstract

This paper is a redo of an article that first appeared in the *Arizona Journal of Natural Philosophy*, July, 1993. There is much to be learned about the incorrect way to change the Establishment from careful study of the life work of this savior of mothers.

This short biography of the Hungarian physician, Ignaz Semmelweis, is designed to encourage those scientists, mathematicians, and physicians who find themselves struggling against the Establishment to change the system for the better. It's just too bad that often a maverick, who finds his or her methods obviously superior to those of his or her peers, cannot find encouragement from them. Often it lies to the future to decide merit. Until then, the just shall live by faith.

I found few sources for this biography. My first exposure to Semmelweis was from that ever-inspiring march of documentaries from PBS. This article, however, relies mostly on one book: *Men Against Death*, Paul de Kruif, (Harcourt, Brace & World, Inc., New York, 1932 [1960]).

Ignaz Semmelweis began his career in the First Maternity Division of the Obstetric ward of the Vienna General Hospital, in 1846. At that time little was known scientifically about the causes of most diseases. Any researcher attempting to investigate a disease ran up against, not only apathy from his peers, but also up against strongly held age-old myths about the nature of the causes of diseases.

Some of these myths are so patently absurd by today's science that it seems hard to believe that they could be so heartily embraced and defended by the physicians of those days, especially in the face of strong contradictory evidence. When strong evidence is ignored, I must assume it's due to all the wrong reasons. What makes the case of Semmelweis so interesting is that he never devised a good theory to replace the old myths; notwithstanding, he still did completely debunk the myths by supplying incontrovertible statistical evidence. It's a lesson to keep in mind even for today.

One such disease, which flourished by the insincere ignorance of physicians, was puerperal, or childbed fever. It was not uncommon in those days for this disease to kill three out of every ten mothers who delivered in a hospital. Few

doctors seemed to care why. One did, however, our Semmelweis. The prevailing belief on the cause of childbed fever at the time was miasma, a pervasive atmospheric emanation that spread infection to people. One gets the impression that this miasma is so devoid of rational properties as to be (conveniently) outside the domain of scientific investigation. No wonder Semmelweis was so upset about it.

For those unfortunate mothers who contracted the disease, most would soon die from it. It first appeared two days after delivery, evidenced by a fever. By the third day an agonizing visceral pain set in. The patient was constantly thirsty and growing ever weaker. On the fourth day blue-violet spots would appear on the hands and feet, indicating that the horror would soon be over. Semmelweis agonized with each of these dying mothers for two years straight. It must have been quite emotionally debilitating to this medical saint of the maternity ward.

Semmelweis was young and impetuous, ready to question authority, ready to challenge them head-on, too. He was considered uncouth by his seniors, and nearly illiterate by all. But he had an unending passion to relieve the suffering and deaths caused by childbed fever. Unfortunately for Semmelweis and for mothers, he was born at a time of indifference to ending childbed fever. His peers called themselves physicians but cared little to relieve the horrors of disease. They called themselves scientists but had all the gumption and curiosity of a gorged sloth.

For whatever reason Semmelweis's boss, Professor Klein, bought into the myth of miasma, even when Semmelweis finally disproved it conclusively. Klein's maternity ward had two divisions: The infamous First Division had five times the death rate from childbed fever than the Second Division. Klein seemed not to care why. Semmelweis did, though. In 1846, for example, the First Division had 451 mothers die from childbed fever. To Semmelweis the discrepancy was a "lucky" break by offering a way to discern the correct variables responsible for difference, and he was right.

His compassion was of the highest nobleness, but his means to confront the situation was less admirable. He openly mocked and challenged Klein, and he did this unflinchingly even though it would never lead to Klein changing his mind. All of Semmelweis's recriminations were of less value than a month's worth of carefully documented statistics on the cases of childbed fever from both divisions. But I found no evidence that Semmelweis made any such attempt to collect data.

Then in quick succession, Semmelweis was fired and rehired again. Not long after returning to the ward, a tragedy for one of his fellow physicians, Kolletschka, triggered the beginning of the end to the mystery of childbed fever. Poor Kolletschka died of childbed fever himself after being accidentally wounded by the scalpel of a clumsy student while they were performing an autopsy. It was obvious to Semmelweis: the scalpel carried cadaver poison which infected Kolletschka; it was not any miasma.

The next couple deductions were both irresistible and mortifying for Semmelweis. The First Division was attended by physicians and medical students,

who routinely performed uterine examinations and deliveries immediately after performing autopsies and without careful washing of their hands and instruments. The second Division was attended mostly by midwives who did little intrusive examinations of the uterus. Thus, the doctors were guilty of transferring the infection from the cadavers to the mothers. The students were also guilty. Semmelweis himself was guilty. What price knowledge.

With a definite plan in hand, Semmelweis needed no longer just attack his boss. He could now go to war against childbed fever. He ordered the entire staff of the First Division to carefully wash their hands in chlorine water before examining or delivering on the ward. This simple prerequisite, so common and second nature to us today, was considered a silly waste of time. So, physicians and students continued to resist this simple procedure, even long after it showed beneficial results.

The death rate plummeted from 18% in April to 1% in June. Soon Semmelweis realized that their hands and instruments must be thoroughly cleaned before examining every patient, not just upon entering the ward. One would think that Semmelweis would have been made a hero, but that didn't happen. It's true that he had results, but he didn't have ongoing data to support his contentions. It's true that he had a hypothesis of how the infecting agent entered the body, but he still had no theory of the true nature of the agent itself.

One important fact to be learned from Semmelweis's experience in attempting to champion his cause is that a scientist must often be all things to all people to win over some. It is not a matter of actual compromise that I'm suggesting, but a matter of playing the game by the rules, of keeping a cool head, of being patient, of foregoing useless recriminations, of accepting conventional channels of communication. This latter rule was outside Semmelweis's personality scope, it seems.

Semmelweis was not interested in rational conversion of his opponents. He distained writing formal papers for journals. It was perhaps this last failing, together with his lack of systematic data available to publish, that slowed down the acceptance of his theory of preventing childbed fever. Perhaps he had hated writing as a youth and never got over it. But now he had a reason to get over it. Surely there was ample cause for him to bury his hatred of formal writing, buckle down and learn how to do it to further the cause.

In 1848, Klein, exhausted from Semmelweis's constant attacks, had Semmelweis transferred to a teaching position. Semmelweis couldn't stand this, so he moved back to Budapest, his birth city. A month after he left the ward, twenty mothers died of childbed fever. Apparently, Klein could have cared less.

Semmelweis took an unpaid job at the St. Rochus Hospital in Budapest. He again turned on the old charmless haranguing of the staff to absolute cleanliness. This time, however, it paid off. Only eight deaths in a thousand due to childbed fever over the next six years, while Semmelweis was there.

In 1861, Semmelweis finally wrote his long-overdue quasi-scientific paper that reviled the community of obstetricians all over Europe. The paper was titled "Aetiology, Concept and Prophylaxis of Childbed Fever." de Kruif had this to say about it:

No wilder, more repetitious, more jumbled, more wordy, yet no more exact, more classical, and surely no more heart-rending human scientific work has ever been written. The obstetrical excellencies read this terrific document in stunned silence. It was too devastating for any answer.

The obstetric community *could* not answer him, so they ignored him, predictably. That only served to enflame Semmelweis's rhetoric against them. He wrote open letters to specific physicians and accused them of being murderers. "The murder must stop" was his battle cry.

His campaign of ranting must have had some positive effect. Afterall, there were younger doctors coming onto the scene with some exposure to the germ theory of disease and to the methods of preventing infection. But this budding new science made its way into medical prophylaxis because of dedicated, hard-working microbe hunters who kept accurate records and published restrained articles in respectable journals or monographs. In any case, Semmelweis made a lasting positive contribution in spite of his methods. Pasteur would do similarly a few years later.

After this point in his life, Semmelweis started to go mad from a disease that would later be determined to have caused severe degeneration of his brain and spinal cord. By the summer of 1865, things were so bad for him that he was taken to a public insane asylum by one of his friends. And there, on August 17, he died, ironically, of blood poisoning, apparently from a self-inflicted accidental knife wound during his last surgery in Budapest. Even in his own death Semmelweis gave evidence that the theory of miasma was utter nonsense.

So, what is the lesson of the story of Ignaz Semmelweis? Is it possible to be too liberal? Yes. Is it possible to be too conservative? Yes. But wisdom is justified of her children.