

## The Study of History

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The study of history is important, not least of all because it reminds us that human nature has not evolved as rapidly as its technology. Every generation believes it can improve upon the previous: new theories, techniques or treatments are championed; a few survive the heel of authority; heresy becomes orthodoxy; the cycle of knowledge repeats itself.

The acceptance of new ideas in medicine is intimately linked to the social and cultural context in which they arise. Nor can doctrines be divorced from the personalities of those who either promulgate or oppose them. Discovery of the etiology and prevention of puerperal fever stands as a classic case-in-point..

Alexander Gordon was the first writer to show clearly the infective nature of puerperal fever in his 1795 “**Treatise on the Epidemic Puerperal Fever of Aberdeen**”:

*...this disease seized such women only who were visited, or delivered, by a practitioner or taken care of by a nurse who had previously attended patients affected by the disease.*

Since he made no practical suggestions, and was not known outside Scotland, his views were largely ignored during his lifetime. Gordon’s work finally achieved recognition in Oliver Wendell Holmes’ 1843 essay, “**The Contagiousness of Puerperal Fever**”. Then a young professor of anatomy and physiology in Boston, Holmes participated in a Medical Society discussion about a local doctor who died a week after cutting himself during an autopsy on a woman with puerperal fever. He offered to review the literature and, to his surprise, found that much more was known about the disease than was taught or practiced by birth attendants. His now-classic paper concluded with specific recommendations. Following exposure to a case of puerperal fever, he advised

*...thorough ablution, change every article of dress, and allow twenty-four hours or more to elapse before attending any case of midwifery.*

Furthermore,

*The occurrence of three or more closely connected cases, in the practice of one individual...is prima facie evidence that he is the vehicle of contagion.*

More importantly, he raised the controversial issue of personal responsibility:

*...the time has come when the existence of a private pestilence in the sphere of a single physician should be looked upon not as a misfortune but a crime; and in the knowledge of such occurrences, the duties of the practitioner to his profession should give way to his paramount obligations to society.*

Holmes' essay contained no original research, was published in a short-lived journal, and might have remained obscure had it not attracted the scorn and ridicule of Charles D. Meigs and Hugh Lenox Hodge of Philadelphia —the leading figures in American obstetrics. Meigs wrote:

*...seeing that I could never convict myself of being the means of spreading the contagion, I remain incredulous as to the contagiousness of the malady.*

In response to his critics, Holmes republished his essay under the title “**Puerperal Fever as a Private Pestilence**” and concluded his prefatory remarks with a plea:

*...if I am right, let doctrines which lead to professional homicide be no longer taught from the chairs of those two great institutions.*

By then, Holmes was aware of the work of Semmelweiss, in Vienna and Pest. In 1840, the Vienna Lying-In hospital was divided into two obstetric wards: the first was used for teaching medical students, the second for training midwives. In the period from 1841 to

1846, mortality from puerperal fever was 9.9% in the first clinic, but only 3.9% in the midwife clinic. Following his appointment as Assistant of the first clinic, Ignaz Philipp Semmelweiss sought to explain this difference.

Most Continental obstetricians believed that puerperal fever was due to a *genius epidemicus*, which was vaguely defined as a ‘miasma’ or an ‘atmospheric cosmic telluric influence’. Semmelweiss doubted that cosmic effect could be three times stronger in one clinic as in the one next door. He systematically ruled-out one explanation after another: overcrowding, lack of ventilation, marital status, diet... but for a long time had no theory of his own.

*Chance favors a prepared mind.*

Louis Pasteur

As always, the breakthrough came unexpectedly: Kolletschka, a friend and colleague of Semmelweiss, nicked himself with a scalpel during an autopsy and died of sepsis a few days later. Having worked for two years in Rokitansky’s pathology laboratory, Semmelweiss immediately recognized the similarity of the necropsy findings to those seen in women who had died from puerperal fever. Years before the germ theory was proposed by Pasteur, Semmelweiss concluded that whatever caused puerperal sepsis could be transmitted from cadavers. Medical students and doctors dissected cadavers, midwives did not. Noting that soap and water alone could not remove the cadaveric odor from his hands, he empirically used a chloride of lime solution. In May 1847, he ordered all his students to wash their hands in this solution before attending patients in labor. The death rate fell from 11.4% in 1846, to 3.8% by the end of 1847, and in 1848 was only 1.3%.

Contrary to legend, his results were enthusiastically endorsed by the junior Faculty in Vienna. However, Semmelweiss hated writing and did not publish the details of his work until 13 years later, in 1861. By then, incomplete accounts of his views had circulated and were ridiculed by many prominent Obstetricians, such as Rudolph Virchow and Wilhelm Scanzoni, as well as by his own chief, Johann Klein. At the same time, Semmelweiss found himself caught in the middle of a bitter struggle for academic control being waged

between the junior staff and Klein, the government-appointed hospital director. His clinical appointment was not renewed, in part because he was not German-born, and he moved back to his native Hungary, where he became director of the maternity hospital in Pest.

Despite his success in reducing maternal mortality, he became increasingly pre-occupied with attacking his detractors. With messianic zeal, he addressed this open letter to Scanzoni:

*Your teaching is based on the dead bodies of lying-in women slaughtered through ignorance...I denounce you before God and the world as a murderer, and the History of Puerperal Fever will not do you an injustice when, for the service of having been the first to oppose my life-saving Lehre it perpetuates your name as a medical Nero.*

He became increasingly depressed and irrational; at the age of 47, in 1865 he was admitted to a psychiatric facility, where he died a few months later. During his lifetime Semmelweiss received little encouragement, and even less recognition.

The “dustbins of history” are replete with discoveries that were either ignored or discredited in their time. Such *ephemera* may well have deserved their fate, but this value-judgment needs periodic re-assessment. Reading antiquarian books and journals inspires respect for the intellect of our professional ancestors; it often reveals their very human failings; and it can be very humbling for anyone claiming originality.