John Shaw Billings was born on April 12, 1838, in Allensville, Switzerland County, Indiana, which was near the frontier of the European-American settlement at the time. His father, James, was from New York and worked as a postmaster and operated a general store. His mother, Abby Shaw, was from Massachusetts and a direct Mayflower descendant, whom Billings remembered for her love of reading. John Shaw Billings took after his mother in this respect and began to read widely as a child, including finishing Plutarch, John Bunyan's *Pilgrim's Progress*, and other religious texts, as well as the works of James Fenimore Cooper by the age of 10. He was almost entirely self-educated except for some help he received from a young clergyman learning Latin in his early teens.

In 1854, he gained admission to Miami University, Oxford, Ohio, about 50 miles from his home, where he continued his voracious reading. In 1857, he graduated second in his class and went on to the Medical College of Ohio in Cincinnati.

At the Medical College of Ohio, the medical course consisted of 5 months of lectures for 2 years; the second year of lectures was identical to the first year. Billings rarely attended lectures, saying that “[b]y reading textbooks I could get more in the same time and with very much less trouble … the systematic teaching of those times I have had to unlearn, for the most part”—sentiments still expressed by many medical students more than a century later.

During his first year of medical school, he worked in the dissecting room, where he demonstrated anatomical structures to younger students because they did not have their own cadavers. In his second year, he lived at St. John's Hospital in Cincinnati (later renamed Good Samaritan Hospital), where he was left alone and where he claimed that he “[l]earned medicine like teaching one to swim by throwing him into the water.”

When preparing a dissertation on surgical procedures for the treatment of epilepsy, he realized that it took a great deal of time and effort to search through the various medical books and journals for information on a single subject. He visited medical libraries in Cincinnati and corresponded with others in Philadelphia, New York, and Boston, requesting additional information. He learned that there was no library in the United States from which a student could obtain specific information on a single subject.

Shortly after his 1860 graduation, Billings enlisted in the US Army. He was put in charge of Cliffburne Barracks in Georgetown, Washington, DC, and ordered to turn it into a military hospital. After this task and a short assignment in Philadelphia, he was reassigned to lead a field medical unit in combat duty with the Army of the Potomac and saw action at the battles of Chancellorsville and Gettysburg. He placed his medical unit just behind the line of battle to provide care to the wounded more rapidly. In 1862, he married Katherine (Kate) Mary Stevens from Rochester, New York, the daughter of a US Congressman; they later had 5 children—one son and 4 daughters.
In 1864, Billings was transferred to the US Surgeon General’s Office in Washington, DC, where he was subsequently placed in charge of the books in the library. He was dismayed to find that books and other publications were listed by author name and not by subject. He published a catalog of the Surgeon General’s Library and then established the Index Medicus in 1879, which allowed students, researchers, and physicians to review the current literature on any medical subject on a timely basis.

In 1876, the Johns Hopkins Board of Trustees requested plans from 5 authorities on hospital construction, including Billings. He toured several hospitals in Europe and responded with a 46-page proposal in which he emphasized that the hospital and medical school should be inseparable. The trustees adopted his plan in 1877. Billings also argued that full-time clinical positions were necessary for a teaching hospital, and he played a major role in the recruitment of 2 of the first physicians at Hopkins—William Welch and William Osler. Billings visited Osler in the latter’s office in Philadelphia and, without sitting down, asked abruptly, “Will you take charge of the Medical Department of Johns Hopkins Hospital?” and Osler immediately answered, “Yes.” Billings then told him to see Welch about the details. Osler later stated that Billings had spent only a couple of minutes in his office.

Billings was appointed as a consultant to the 1880 and 1890 US census, where he and inventor Herman Hollerith (who would later found the company that would become International Business Machines or IBM) introduced a crude punch card system for calculating vital statistics.

Billings survived lip cancer in 1890. He retired from the Surgeon General’s Office in 1895 and became Professor of Hygiene at the University of Pennsylvania, but felt that he was really not qualified in the developing fields of bacteriology and immunology. His tenure in Philadelphia was short.

Billings had inspired Andrew Carnegie to construct branch libraries throughout New York City and more than 2500 libraries in cities and towns throughout North America. The New York Public Library was formed in 1895 by recataloging works from several public libraries formed by private foundations, including Lenox, Tilden and Astor Foundations. In 1896, Billings was asked to become the director of the New York Public Library. He made a major contribution to the design of the new building on Fifth Avenue and 42nd Street (including the famous lions memorialized in US Scott # 3447) and remained in charge until he died of pneumonia on March 11, 1913.

He was buried in the Arlington National Cemetery with full military honors. One of the eulogies stated that in response to the question of how he had accomplished so much, Billings replied, “I’ll let you into the secret — there’s nothing really difficult if you only begin — some people contemplate a task until it looms so big, it seems impossible; but I just begin and it gets done somehow.”

Potential Competing Interests: Dr Steensma served as a consultant for Janssen and Sensei. He is an employee of Dana-Farber Cancer Institute. He has received grants from the National Institutes of Health and Aplastic Anemia and MDS International Foundation. He has also received payment for the development of educational presentations from Physicians’ Education Resource and Cowen Inc. He owns stocks of Array BioPharma Inc. Dr Kyle reports no competing interests.

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