

Early Statisticians

In 1900, ASA president Carroll Wright wrote a short history of U.S. censuses that singled out three “eminent statisticians” for their work on the 1850 census: Lemuel Shattuck, Jesse Chickering, and Edward Jarvis.¹ Chickering was a minor figure compared to the other two. Here we introduce Shattuck and Jarvis, as well as ASA president Francis Walker. The fourth early statistician described here is James DeBow, who played no role in the ASA but represented an entirely different part of the U.S. regarding the development of statistics in America.

Undoubtedly, **Lemuel Shattuck** (1793-1859) was the most influential member of ASA during its early period, even though he never served as president. Shattuck’s childhood, education, and vocations reflect the arduous conditions that defined life in America in the early part of the 19th century. Shattuck was born in Massachusetts but a few months later his family moved to New Hampshire. However, his mother died when he was only four, which forced him to spend most of his childhood working on a farm and then in a shop. This limited his schooling to no more than six weeks a year, though he engaged in a program of self-education that enabled him to become a teacher at the end of the War of 1812.

Shattuck first taught in Troy and then Albany, NY. He then somehow obtained a teaching position in Detroit. The journey from Albany to Detroit was arduous indeed. The first part of the trip was a one-week stagecoach ride from Albany to Buffalo. This was followed by a sailboat jaunt from Buffalo to Detroit that took more than another week. On board the ship the only food was dry bread. Yuck! Shattuck remained in Detroit for four years, yet his modest salary of \$800 was not fully paid until long after he returned to New England.

Due to poor health, Shattuck returned to the family home in Concord in 1822 and remained there until 1833. Concord was one of the rapidly growing seaboard cities in the U.S. In 1825 he married Clarissa Baxter; they had five children. During his time in Concord, he was particularly active with the Concord school committee by securing passage of an ordinance requiring an annual report in writing from that committee to the town meeting. A few years later the Massachusetts legislature required such reports of school committees throughout the state.



He also wrote a book on the history of Concord from its founding in 1635 to 1832, highlighting the fact that the town served as a temporary refuge for both the legislature and for Harvard during the opening days of the Revolutionary War.² Of interest here, a special chapter was

devoted to his statistical analyses based on church and municipal records. This investigation showed his interest in exact numerical statements when he discovered that imperfect records of births, marriages, and deaths had been recorded by various localities.

Shattuck moved to Cambridge in 1834 and to Boston the following year; he remained in Boston for the rest of his life. He made a living as a bookseller and publisher on a modest scale, yet five years later he was able to retire and spend the rest of his days devoted to vital statistics. He became a member of Boston Common Council 1837-1841. Because of errors he had discovered while researching for his book on the history of Concord, he used his membership on this council to correct errors in censuses, first on a local scale and then on a national stage.

Shattuck enlisted the support of three bodies for a more effective system of registration: the state legislature, the Massachusetts Medical Society, and the AAAS. He achieved success in 1842 when the legislature passed a law requiring more exact registration of births, marriages, and deaths. Accuracy was achieved by following the British practice of making each person the census unit instead of each family, thus recording the name, age, birthplace, marital condition, and occupation of each individual. We take this for granted today.

Four years later, in 1846, Lemuel Shattuck published the results of a statistical study he had directed in the 274-page book, *Report to the Committee of the City Council Appointed to Obtain the Census of Boston for the Year 1845*. A distinguishing feature of this report was the inclusion of an interpretative introduction, a standard practice today. In 1900, ASA president Carroll Wright recorded how Shattuck favored knowledge of statistics over political connections:³

Shattuck ... recommended that a central board of three persons ... should be organized at Washington, to be selected "not for their political opinions, but for their scientific attainments and knowledge of the matters they are to investigate."

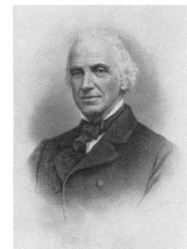
All the while, Shattuck maintained correspondence with leading statisticians in Europe, notably Adolphe Quetelet but also the president of the London Statistical Society (Sir Rawson William Rawson) and the first Registrar General of England (Thomas H. Lister). Statistical practices in Europe, particularly Britain, were ahead of those in America. These contacts made Shattuck aware of the spate of local statistical societies that had sprouted up in France and Britain. In particular, the constitution of the Statistical Society of London served as the model for the ASA when he spearheaded its founding in late 1839. Nearly all of the European societies had been named for cities, but Shattuck vacillated. He ended up choosing the national name American yet insisted upon the parochial requirement of holding annual meetings in Boston.

In 1849, Shattuck was elected to the Massachusetts legislature, where he was selected as chair of a special committee that thoroughly revised the state registration laws. His bill was then enacted and soon became the model for every other state in the union. Walter Willcox wrote, “For our present country-wide registration system Shattuck deserves more credit than any other man ... The United States census of 1850 was the Boston census of 1845 writ large.”⁴

Arguably, Shattuck’s crowning achievement in social service was his plan for a sanitary survey of Massachusetts. As chairman of a commission in 1849, he made a sanitary survey of Massachusetts. This important statistical undertaking resulted in the publication of a *Report*⁵ that he planned, implemented and wrote. This work proved to be a milestone in the improvement of American public health, although it gathered dust for 20 years before Massachusetts established the earliest American State Board of Health in 1869, ten years after his death at age 65. This achievement might have served as the culmination of Shattuck’s lifetime interest in public health, as both of his parents and his two sisters had died of tuberculosis (then called consumption), his mother when he was 4, his father when he was 22, and the two sisters when he was 23 and 28.

In 1959, the centennial year of his death, Lemuel Shattuck was called the “prophet of American public health”⁶ and more recently, in 2008, “the architect of American public health”⁷. Overall, though not a mathematical statistician, he should be remembered for four accomplishments: (1) founding the ASA, (2) establishing an effective system of registration for population studies, (3) using statistics in census practice, and (4) improving American public health and preventive medicine. Because of these achievements, he stands out as the most influential American statistical investigator of his time.

Edward Jarvis (1803-1884) was the second leading American statistician. He served the longest presidency of the ASA, 31 years, and managed to keep it afloat during the U.S. Civil War. Jarvis was born and raised in Concord. He graduated from Harvard in 1826 and then attended the University of Vermont as a medical student before earning his M.D. degree in 1830 at Harvard Medical School, then called Massachusetts Medical College. Jarvis was interested in mental illnesses and it was his study of the 1840 census, ably assisted by his wife, which led to his work on the black population in the U.S. As a member of a commission charged with exploring and studying the problem of handling the insane, Jarvis prepared a 600-page



report in 1855 that attracted wide attention. This also led to subsequent dealings with the census bureau, as he edited the vital statistics section in the 1860 federal census and also served as a consultant on the census ten years later.

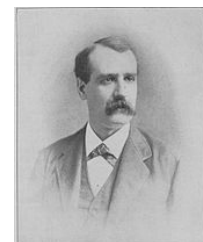
Jarvis represented the ASA at the International Statistical Congress held in London in 1860. He also promoted an ASA library and donated 600 volumes to it. Consequently, it became known as the Jarvis Statistical Library; the library was transferred to the Boston Public Library in 1898.

The fourth ASA president, **Francis Amasa Walker** (1840-1897), had a varied career as an administrator, college professor, economist, journalist, military leader, and, of relevance here, a statistician. Born in Boston, Walker graduated from Amherst College in 1860. He then spent a year studying law at a private practice before entering the military to serve in the Civil War. He was forced to retire as brigadier-general in 1865 due to illness. For the next three years he taught mathematics, Greek, and Latin at a seminary and then joined the editorial staff of a newspaper in Springfield, MA. In 1869, at age 29, he was appointed chief of the Bureau of Statistics and Deputy Special Commissioner of Revenue.



Walker gained fame as a statistician when he reorganized the Bureau of Statistics on a scientific basis, leading to his appointment as superintendent of both the 1870 and 1880 federal censuses. In 1874 he edited a government publication entitled *The Statistical Atlas of United States*. His biographer stated, “This pioneering Atlas, making skillful use of colors and graphic presentations, took advantage of recent developments in color printing and photography, and was the forerunner of wider employment of charts in the future.”⁸ In between the two censuses, he served as Chief of the Bureau of Awards at the Philadelphia Centennial Exposition of 1876.

Walker entered academia in December 1872 when he resigned his position at the census bureau in order to teach economics and statistics at Yale. During this time he published three books on economics that appeared from 1876 to 1879. He resumed his academic career in 1877 when he became the first person to lecture on economics at Johns Hopkins, one year after that historic university was founded, and repeated those lectures the following year. In 1881 he was appointed president of MIT, a position he held until his death. During his presidency, he



managed to publish five more books using statistics in various domains. He also served as president of the American Economic Association (1886-1892).

Walker foreshadowed this development, as well as the need for training in statistics, in an article from 1890, “The study of statistics in colleges and technical schools”:⁹

It cannot be long, however, before the growing interest in economics and history will compel the recognition of statistics as a distinct and an important part of the curriculum of every progressive institution. The main difficulty will be to find the men who have had the training at once severe and liberal, which will qualify them to inspire and direct the studies.

His views regarding the need for training in statistics were emphasized in his address at the 1897 annual meeting of the ASA, just five days before his sudden death: “All those who have had anything to do with American statistics came into the service comparatively late in life, without any elementary training.”¹⁰

Francis Walker was very influential in turning ASA into a national organization. In 1883 he succeeded longtime president Edward Jarvis, and held that office until his death. In 1888, the ASA initiated today’s *Journal of the American Statistical Association* during his presidency. Notably, it was during Walker’s term that the exclusive by-invitation-only membership requirement was waived, resulting in dramatically increased national interest and a growth in membership from 160 at the beginning of his term to 500 at the end.

The final mid-nineteenth century American statistician we introduce here is **James Dunwoody Brownson DeBow** (1820-1867), who was born in Charleston, SC, never lived in New England, and played no role in the ASA. DeBow’s father died when he was six and he went to work in a wholesale grocery house four years later. He stopped working in 1838 to enroll at an institute to prepare for college. He then attended the College of Charleston 1839-1843, graduating as valedictorian of his class. For the next year he studied law and was admitted to the bar, but there is no record of his ever having practiced. Instead, he became associated with a very important periodical in its day, the *Southern Quarterly Review*.



Even though DeBow became editor, he left that position in 1845, after just one year, and moved to New Orleans to found his own magazine, *The Commercial Review of the South and West*, whose first issue appeared in January 1846. In it he expressed his intention “to collect, combine, and digest in permanent form, for reference, important statistics” relating to the South and West. An article he published two years later, “Universities in America,” urged the teaching

of commerce and statistics. The periodical became known as *DeBow's Review* after his death in 1867 and it continued publication until 1880, although in the latter years of publication it was devoted mainly to literature rather than to statistical and mercantile subjects.

James DeBow quickly earned a reputation as a statistician from articles he wrote in the first few issues of his magazine. Consequently, he was appointed to an endowed professorship in 1848 at Tulane University. This institution traces its origin to the Medical College of Louisiana in 1834, which became part of the public University of Louisiana thirteen years later. When that institution was reorganized in 1884, Tulane emerged as a private university. Back in 1848 the university had difficulty attracting students. As Professor of Commerce and Statistics, DeBow offered the course "Statistics of population and wealth in their application to commerce, agriculture, and manufacture," but he attracted no students.

So that year, 1848, he accepted the position of head of the newly created Bureau of Statistics in the State of Louisiana. The bureau was eliminated from the state government three years later, but in the meantime DeBow had accumulated comprehensive data. Consequently, he was one of a handful of statisticians who were consulted for the 1850 census. When difficulties arose with the politician charged with conducting the census, President Franklin Pierce appointed DeBow to the position. DeBow reorganized the census work and carried it through to its completion in 1855 that included a very important compendium, *Statistical View of the United States*, which raised his reputation as a statistician immeasurably. In this 1200-page work, DeBow recommended the establishment of a permanent office of the census in place of the policy of dismantling that office after it completed its work every ten years. However, it was not until 1902 that a permanent Bureau of the Census was finally established in the U.S.

Endnotes:

¹ Carroll D. Wright, *The History and Growth of the United States Census*, Washington, DC: Government Printing Office, 1900, 39-41.

² Lemuel Shattuck, *A History of the Town of Concord; Middlesex County, Massachusetts, from its Earliest Settlement to 1832*, Boston: Rossell, Odiorne and Co., 1835.

³ As quoted on p. 303 of Paul J. FitzPatrick, Leading American statisticians in the nineteenth century, *Journal Amer. Statistical Assoc.* **52** (1957), 301-321.

⁴ On p. 233 of Walter F. Willcox, Lemuel Shattuck, statist, founder of the American Statistical Association, *Journal Amer. Statistical Assoc.* **35** (part 2) (1940), 224-235.

⁵ Lemuel Shattuck, *Report of a General Plan for the Promotion of Public and Personal Health*, Cambridge: Harvard Univ. Press, 1948. [Facsimile Reprint]

⁶ Editorial, "Lemuel Shattuck (1793-1859): Prophet of American public health," *American Journal of Public Health* **49** (1959), 676-677.

⁷ Warren Winkelstein, "Lemuel Shattuck: Architect of American public health," *Epidemiology* **19** (2008), 634.

⁸ On p. 310 of FitzPatrick, Leading. [Endnote 3.]

⁹ As quoted on *idem*.

¹⁰ *Ibid*, p. 311.