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(*b*. Hartford, Connecticut, 25 April 1879; *d*. Brookline, Massachusetts, 28 December 1964)

mathematics, physics, statistics, public health.

The son of a schoolteacher, Wilson graduated B.A. from Harvard in 1899 and Ph.D. from Yale two years later. He studied for a while in Paris, taught mathematics at Yale, and then moved to the Massachusetts Institute of Technology, becoming head of the department of physics there in 1917. Five years later he was appointed professor of vital statistics at the Harvard School of Public Health. Wilson's work in that capacity earned him two presidencies in 1929: of the American Statistical Association and the Social Sciences Research Council, New York. Following his retirement in 1945 he acted as consultant to the Office of Naval Research. Throughout his long and varied career (among other things he was managing editor of the *Proceedings of the National Academy of Sciences*, Washington, for half a century) Wilson combined a quiet if somewhat crotchety Yankee charm with a firm sense of high standards in research and exposition.

In each of his fields Wilson made characteristic contributions. As a student of Willard Gibbs at Yale, he codified the great physicist's lectures on vector analysis into a textbook. This beautiful work, published when Wilson was only twenty-two years old, had a profound and lasting influence on the notation for and use of vector analysis. Meantime, Wilson's mind and pen began to range over many other areas of mathematics, including the foundations of projective and differential geometry; and in 1903 he criticized, with bold sharpness, Hilbert's "so-called foundations" of geometry. In 1912 Wilson published a comprehensive text on advanced calculus that was the first really modern book of its kind in the United States. Immediately successful, it had no rival for many years. Wilson's interest in theoretical physics, inspired by Gibbs, resulted in papers on mechanics and relativity. World War I led him to study aerodynamics, in which he gave a course; and he did research on the theory of the effects of gusts on airplane flight. Outcomes of this work were the publication of a book on aeronautics in 1920 and the stimulation of a group of students who were to make a mark in that field.

Early in the 1920's Wilson began to think carefully about probability and statistics. Because of his Harvard professorship he naturally focused on vital statistics, but he also pondered the theory of errors and its relation to quantitative biology and astronomy. In this field he was both innovative and evangelical–constantly drawing attention to the role of statistics in biology and urging the recruitment of full-time statisticians.

A major contribution to inferential statistics was Wilson's restructuring of interval estimation. For long before his time it had been vaguely implicit that the attachment of a standard error to a point estimate was a crude interval estimate. Thus, noting, say, that a series of observations yielded 129± 22 mm. as the mean length of a sample of Armadillidiidae, the researcher could add that the true (parametric) value lay, with a probability of about 2/3, in the interval 107–151. In an admirably concise note published in 1927, Wilson pointed out that, logically, a true value cannot have a probable location. He also showed how a rigorous and unelliptic statement could be made about the probability that an estimated interval will embrace the (fixed) parameter. This interval was essentially what became known as a confidence interval, as rediscovered and developed by Jerzy Neyman and his school. The priority must, however, be given to Wilson.

In studying cumulative population growth, and in handling quantal-response bioassay (which involves "all-or-none" reactions of members of a biological population to an agent), Wilson was an early and effective advocate of the logistic function, $P = (1 + \exp[-(\alpha + \beta X)])^{-1}$ where P is the probability of response to the amount X of the agent, and $\alpha$and β are parameters. He published methods of handling data that fitted this function, and thus of estimating the potency of the agent.

Wilson exhibited a constructively critical mind, quick to expose flaws and errors. Each of his books was an effective and timely exposition of a major subject, and his best papers made lasting impressions. He contributed to many disciplines other than his specialties, including epidemiology, sociology, and economics. His greatest originality may have been reached in his papers on statistics– which, interestingly, was a subject he did not explore deeply until middle age.

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A full account of Wilson’s life and work, by Jerome Hunsaker and Saunders Mac Lane, is in *Biographical Memoirs. National Academy of Sciences*,**43** (1973), 285–320, with bibliography.

Norman T. Gridgeman

Saunders Mac Lane