

Edmund Beecher Wilson Biography

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Biography

Wilson was born in Geneva, Illinois, and was encouraged by his cultured family to study living things. He grew up in an era when biology was quickly changing from a subjective field to a scientific field based on quantifiable results. Wilson got his first exposure to heredity and evolutionary theory at the Sheffield School at Yale. He was hooked. He went on to get his doctoral degree at Johns Hopkins University in 1881, then studied abroad for several years. Upon returning to the United States, he took positions at Williams College and Bryn Mawr before becoming professor of zoology at Columbia University.

Wilson taught his students to view biology as a whole made up of different fields--heredity, embryology, evolution, etc. He spent the first part of his career investigating the cell nucleus; he wanted to find out how chromosomes controlled heredity. It was one of Wilson's graduate students, Walter S. Sutton, who made the first connection. Sutton noticed that the visible behavior of chromosomes indicated that they contained "Mendelian factors," or genes. Wilson was quick to support Sutton's conclusions. Another of Wilson's former students, Clarence McClung (1870-1946), pointed out that the unpaired "accessory" chromosome (later called the X chromosome) may be the clue to how sex is inherited.

In 1905, Wilson (and independently, Nettie Stevens) expanded on these findings to identify the missing link between cytology (the study of cells) and heredity. He suggested that sex was determined by chromosomes--and even went so far as to pinpoint which chromosomes. Wilson concluded that females have XX chromosomes, while males possess XY chromosomes. Following the process of meiosis, all eggs are left with an X chromosome, but sperm can have either X or Y. If an X chromosome sperm fertilizes an egg, the result is a female. If a Y chromosome sperm fertilizes and egg, the result is a male. The reports of Wilson and Stevens--published months apart--marked the first time any specific hereditary trait could be linked to a specific pair of chromosomes and provided the impetus for further investigation of other such connections.