

Friedrich August Johannes Löffler (Loeffler), German Bacteriologist

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Although Edwin Klebs first saw the bacillus causing diphtheria in 1883, it was Friedrich August Johannes Löffler (Loeffler) who isolated the bacillus (*Corynebacterium diphtheriae*) the following year. Löffler reported that the bacillus was always present in the diphtheritic exudate on the mucous membranes of the larynx and trachea of patients with diphtheria. Furthermore, he isolated the organism, cultured it, reproduced the disease in susceptible animals, and then recovered the bacillus from the experimentally diseased animal, thus fulfilling Koch's postulates. He noted that guinea pigs and pigeons were very susceptible to the bacillus, but rats, mice, and small birds were not. He also demonstrated that rabbits succumbed to airway obstruction caused by the membranous exudates of the organism. He believed there was a diphtheria toxin and subsequently showed that some animals are immune to diphtheria, which contributed to Emil von Behring's work in antitoxin development.

Born June 24, 1852, in Frankfurt am-Oder, Brandenburg, Prussia, he served during the Franco-Prussian War. His father, Gottfried, was a professor at the Kaiser Wilhelm Academy for military medicine in Berlin. Following his military service, Löffler studied medicine at the University of Würzburg and obtained his medical degree from the University of Berlin in 1874. After military service as an Army physician, he became an assistant in the Imperial Health Office in Berlin in 1879, where he worked with Robert Koch, who discovered that *Mycobacterium tuberculosis* was the causative agent of tuberculosis in humans. Löffler stated that he "Learnt what it

means to observe and work accurately and with energy to pursue the problem laid before us" while working with Koch.

In 1882, Löffler and Wilhelm Schütz reported that *Bacillus mallei* (now called *Burkholderia mallei*) caused glanders, a contagious disease of horses. Löffler discovered the organism causing swine erysipelas 3 years later. He was appointed Professor of Hygiene at Greifswald in 1888. He studied *Salmonella typhimurium* and suggested that the organism might be used for bacteriological control of disease. In the spring of 1892, the fields of Thessaly were overrun by mice that threatened the harvest. Löffler postulated that *S. typhimurium* might be used for bacteriological control of the field mice and was invited by the Greek government to control the plague. Bread was soaked in cultures of the organism and spread throughout the fields, and within a month the number of mice decreased dramatically. He subsequently showed in 1898 that foot-and-mouth disease was caused by a filterable virus (Aphthovirus). Löffler returned to Berlin in 1913 as director of the Robert Koch Institute for Infectious Diseases.

Löffler was known as a linguist and considered to be an excellent teacher. He published Volume 1 of the Historical Development of Bacteriology but did not complete the second volume. He died in Berlin April 9, 1915, following a surgical operation. He was honored by stamp Scott #2595, issued by Germany in 2010.

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