

Wilhelm His, Sr. (1831-1904) ^[1]

By: Buettner, Kimberly A. Keywords: Biography ^[2] Human development ^[3]

[Wilhelm His](#) ^[4], Sr. was born on 9 July 1831 in Basel, Switzerland, to Katharina La Roche and Eduard His. He began his medical studies at Basel in 1849 and later transferred to the [University of Bern](#) ^[5] during the winter semester of 1849-1850. A year later, His arrived at the [University of Berlin](#) ^[6], where he studied under [Johannes Müller](#) ^[7] and [Robert Remak](#) ^[8]. For his clinical training, His attended the [University of Würzburg](#) ^[9] from 1852-1853. During his training, however, His became more interested in the theoretical teachings of [Rudolf Virchow](#) ^[10], [Albert von Kölliker](#) ^[11], and [Franz von Leydig](#) ^[12] than in clinical instruction. While at Würzburg, His also studied the writings of [Carl Ludwig](#) ^[13] and Hermann Lotze, and he concluded his schooling with visits to Prague and Vienna, where he met [Ernst von Brücke](#) ^[14] and Karl Rokitansky.

In the summer of 1854, His passed his physician's examination in Basel, and in 1855 he presented his dissertation on the normal and pathological [histology](#) ^[15] of the cornea. While studying chemistry in Paris during the winter of 1855-1856, His befriended ophthalmologist Johann Friedrich Horner and physicist Eduard Hagenbach. The following winter, after pursuing independent research, His qualified as a lecturer in anatomy and physiology at Basel. After spending the summer in Berlin with ophthalmologist Albrecht von Graefe pursuing ambitions of an assistantship in ophthalmology, His was called to Basel during the fall of 1857 to succeed Georg Meissner as professor of anatomy and physiology. During his time at Basel His was a member of the city parliament and was responsible for reorganizing the city after typhus and cholera epidemics. In 1865 His published his first important embryological work, [Die Häute und Hohlen des Körpers](#) ^[16], after his investigations of the lymphatic system.

In 1872 His left for the [University of Leipzig](#) ^[17] to succeed Ernst Heinrich Weber as chair of anatomy and in April 1875 His established one of the most modern theoretical medicine laboratories. In 1874 His published his *Über die Bildung des Lachsembryos*, an interpretation of vertebrate embryonic development. After this publication His arrived at another interpretation of the development of embryos: the concrescence theory, which claimed that at the beginning of development only the simple form of the head lies in the embryonic disk and that the axial portions of the body emerge only later. Although this theory was once thought to be one of His's great discoveries, it was later recognized as having serious flaws. The concrescence theory did, however, stimulate significant discussion that led to many further embryological investigations. His also contributed by being the first scientist to seek a comprehensive causal-mechanical explanation of embryonic development. However, as a result of His's use of descriptive and morphological evidence rather than experimental results to support his theories, [Wilhelm Roux](#) ^[18] is considered the founder of the causal-analytical approach, called [Entwicklungsmechanik](#) ^[19], for the study of embryonic development.

Throughout His's scientific career, he was both an inspiring leader and an excellent investigator. He held vice-chancellor positions at both the [University of Basel](#) ^[20] (1869-1870) and the [University of Leipzig](#) ^[17] (1882-1883). He was the co-founder and president of the

German Anatomical Society, secretary of the Mathematics and Physics Section of the Royal Saxon Society of Sciences, and a member of the Brain Research Commission of the International Union of Academies. He also helped with the reorganization of the Society of German Scientists and Physicians. As an embryologist, His introduced a number of new methodologies to the field. In 1866 he constructed the first [microtome](#) [21]. He also built an [embryograph](#) [22], encouraged the use of microphotography in anatomical research, and produced a series of well-known wax models of the development of [fish](#) [23], chickens, and [humans](#) [24]. His study of human [embryology](#) [25] led to the extremely important collection of medical specimens and models that formed the starting point for Franklin P. Mall's [collection of human embryos](#) [26] with the [Carnegie Institution of Washington](#) [27]. He died on 1 May 1904 in [Leipzig](#) [28], Germany.

Sources

1. Querner, Hans. "His, Wilhelm." *Dictionary of Scientific Biography* 6: 434-36.
2. Hopwood, Nick. "Producing Development: The Anatomy of Human Embryos and the Norms of [Wilhelm His](#) [4]." *Bulletin of the History of Medicine* 74 (2000): 29-79.
3. Hopwood, Nick. [Embryos in Wax: Models from the Ziegler Studio](#) [29]. Cambridge: [Cambridge University](#) [30] Press, 2002.

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