

## Christian Heinrich Pander (1794-1865) <sup>[1]</sup>

By: Ruffenach, Stephen C. Keywords: Biography <sup>[2]</sup> Chicks <sup>[3]</sup>

[Christian Heinrich Pander](#) <sup>[4]</sup>, often remembered as the father of [embryology](#) <sup>[5]</sup>, also explored the fields of osteology, zoology, geology, and anatomy. He was born in Riga, Latvia, on 24 July 1794. Pander, with an eclectic history of research, is best remembered for his discovery and explanation of the structure of the [chick](#) <sup>[6]</sup> [blastoderm](#) <sup>[7]</sup>, a term he coined. In doing so, Pander was able to achieve the goal set forth by his teacher, Ignaz Döllinger, to reinvigorate the study of the [chick](#) <sup>[6]</sup> embryo as a means of further exploring the science of [embryology](#) <sup>[5]</sup> as a whole. His findings paved the way for the work of [Karl Ernst von Baer](#) <sup>[8]</sup>, who would later revolutionize the field of [embryology](#) <sup>[5]</sup> with his research.

Pander initially studied in the local schools of his hometown, Riga, and eventually enrolled in the [University of Dorpat](#) <sup>[9]</sup> in 1812. While studying there, Pander attempted to pursue an education in both medical science as well as [natural history](#) <sup>[10]</sup>. It was during this time that Pander began to work with an anatomist named [Karl Friedrich Burdach](#) <sup>[11]</sup> who had previously taught [Karl Ernst von Baer](#) <sup>[8]</sup>. Pander left Dorpat in 1814 and traveled to Germany. It was there in 1816 that Pander met von Baer, who convinced him to study at the [University of Würzburg](#) <sup>[12]</sup> under the tutelage of Ignaz Döllinger. Pander agreed and traveled to Würzburg where he received his MD in 1817. It was also here that he published his dissertation, *Historia Metamorphoseos Quam Ovum Incubatum Prioribus Quinque Diebus Subit* <sup>[13]</sup>, a study of the components of the [chick](#) <sup>[6]</sup> embryo including detailed illustrations by Eduard Joseph d'Alton.

During his work at the [University of Würzburg](#) <sup>[12]</sup>, Pander discovered the [blastoderm](#) <sup>[7]</sup> of the [chick](#) <sup>[6]</sup> embryo. The [blastoderm](#) <sup>[7]</sup> is the outermost cellular layer of the embryo, which Pander believed contributed greatly to embryonic development. He studied the blastoderm's role in early embryonic development, describing the outer, middle, and inner layers in detail while only being able to conclude that the development of blood vessels occurred in the middle layer and that important events of embryonic development followed thereafter. Despite the lack of in-depth conclusions, Pander's discovery and recognition of the [blastoderm](#) <sup>[7]</sup> as well as the layered structure of the embryo provided invaluable information and guidance to his colleagues as well as future embryologists, including von Baer.

Despite promising early research, Pander did not pursue further work in the study of [chick](#) <sup>[6]</sup> embryos or [embryology](#) <sup>[5]</sup> in general. After he obtained his MD and published his dissertation, Pander began traveling through Europe visiting science museums and continuing his work of observation in the fields of biology, paleontology, and geology. His primary goal in doing so was to visit and study the newest and most intricate fossils and skeletons discovered in different parts of the world. Pander eventually began to publish a series of works on osteology, the study of bones, collaborating once again with E. J. d'Alton. Pander became a member of the Academy of Sciences in St. Petersburg in 1821 and a member of the [St. Petersburg Zoological Academy](#) <sup>[14]</sup> in 1826. For the remainder of his life, Pander lived mainly in his estate near his hometown of Riga while still taking time to travel and continue his

work in the fields of geology and paleontology, though none of his later work gained significant recognition. Pander died on 22 September 1865 in St. Petersburg. Though somewhat inconclusive, Pander's work with [chick](#) <sup>[6]</sup> embryos and their components marked the beginning of a more advanced understanding of [embryology](#) <sup>[5]</sup>.

## Sources

1. Bullough, Vern L. "Pander, Christian Heinrich." *Dictionary of Scientific Biography* 10: 286-288.
2. Schmitt, Stéphane. "From Eggs to Fossils: Epigenesis and Transformation of Species in Pander's Biology." *International Journal of [Developmental Biology](#)* <sup>[15]</sup> 49:1-8.

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