

De ovi mammalium et hominis genesi (1827), by Karl Ernst von Baer

De ovi mammalium et hominis genesi (On the Genesis of the Ovum of Mammals and of Men) is an 1827 pamphlet by Karl Ernst von Baer about the anatomical observation and description of the egg (ovum) of mammals, like dogs and humans. The pamphlet detailed evidence for the existence of the ovum at the beginning of the developmental process in mammals. Prior to von Baer's publication, there was much debate about how organisms develop, as some claimed that organisms grow from a corpuscular element already preformed in the body (preformationism), and others said that organisms developed from a fluid material undergoing a process of progressive formation (epigenesis). Researchers at the time struggled to observe the early stages of development, and those such as von Baer had to observe the phenomenon through microscopes and then provide interpretations of the phenomena they observed.

De ovi mammalium et hominis genesi appeared as a letter to the Imperial Academy of Sciences in Saint Petersburg, Russia. The pamphlet was written in Latin and printed in Leipzig, Germany, by the publisher Leopold Voss. Von Baer's anatomical study of the mammalian ovum sought to end the debate about whether or not the aggregation of tissue that appeared in oviducts, which von Baer and his contemporaries called the Graafian follicle, was the same thing as the egg (ovum).

Earlier researchers had used microscopes to look at eggs and to try to explain early development. Mid-17th century scientists, such as Marcello Malpighi and Nicolas Steno, both in Italy, claimed that living beings developed from a corpuscular element called the ovum, which in Latin means egg, as its function corresponded to the birds' eggs. De ovi mammalium et hominis genesi provided empirical observations and detailed description of the ovum's features.

Von Baer studied corpses from different periods of development, and he described the metamorphosis of the ovum and eventually its stages of development. In 1651, the physician William Harvey had employed the Latin word ovum to refer to the beginning of animal life in his *Exercitationes de generatione animalium* (Exercises on Animal Generation). Harvey provided no evidence for such a claim. From the 17th to the 19th century, other scholars in Europe, such as Regner de Graaf, William Cruikshank, Jean-Luis Prévost, and Jean-Baptiste André Dumas had observed the ovum in mammals. However, their contributions were imprecise about the place in which the ovum was likely generated. Von Baer's pamphlet helped clarify how the ovum is generated.

The pamphlet has an introduction and six chapters. In the introduction, von Baer first praises the Imperial Academy of Sciences in Saint Petersburg, Russia, and the works of its scholars. Second, he outlines the conceptual background of his discovery, in particular the debate about the relationship between Graafian follicles and the ovum. Scholars involved in that debate either argued that a Graafian follicle was actually the ovum, as had de Graaf in 1672, or that it did not correspond to the ovum, as had Cruikshank argued in 1797 and Prévost and Dumas in 1824. Third, von Baer states that the goal of his research is to resolve that debate by assessing the relationship between a Graafian follicle and the ovum. After introducing the historical context, von Baer writes that the main organism he used for his research was the dog.

In Chapters One and Two, von Baer describes the first stages of development in the dog embryo, and he names its different parts. He writes about the first stages of development, and he describes the embryo's shape, color, and position of the anatomical structures. Additionally, von Baer notes that in more advanced stages of development the ovum lies in the uterus, while in less advanced stages it lies in the oviducts. His observations, and the similarity of the ovum between the early and

later stages, enabled von Baer to infer that the ovum passes through the oviducts before reaching the uterus.

In Chapter Three, von Baer writes about the dog's ovum as he found it in the ovary. Von Baer claims that the ovum is not exactly the same as the Graafian follicle, as some scholars had thought, and that it lies inside the follicle. In Chapter Four, von Baer describes the formation of the Graafian follicle by comparing how that phenomenon occurs in different mammals. Such a comparison demonstrated that in all of those mammals the ovum is formed in the same way. In Chapter Five and Six, von Baer describes the development of mammals in general, and he summarizes the course of the ovum from the ovary to the oviducts to the uterus. Additionally, he compares the ovum of mammals with the ovum of other animals, such as birds. Von Baer concludes that all animals develop from an ovum. Von Baer's statement that reproduction begins with a corpuscular element rather than with liquid matter influenced debates concerning generation, because it disproved a claim of Albrecht von Haller's, who worked in Switzerland, that development starts from fluids.

Many scholars accepted the article's conclusions, as it provided evidence for to settle a long-standing debate. The cellular theory by Matthias Jacob Schleiden and Theodor Schwann in 1839 complemented von Baer's discovery of the mammalian ovum, as it enabled researchers to describe the ovum as a primitive cell responsible for the beginning of an animal's development.

In 1828, von Baer provided a commentary to his work, titled "Commentar zu der Schrift: De Ovi Mammalium et Hominis Genesi" (Commentary on the Work: De Ovi Mammalium et Hominis Genesi). The first translation of "De ovi mammalium et hominis genesi" appeared in French in 1829 as a book edited by Gilbert Breschet. Benno Ottow translated von Baer's article into German in 1927. Charles Donald O'Malley translated von Baer's article into English and published it in 1956.

Von Baer's work described the genesis of the ovum and explained both its mechanics and the place in which it generates. The 1827 publication provided evidence for the claim that the development of animal life begins from an egg.

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