

St. George Jackson Mivart (1827-1900) ^[1]

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St. George Jackson Mivart studied animals and worked in England during the nineteenth century. He also proposed a theory of organismal development that he called individuation, and he critiqued [Charles Darwin](#) ^[3]'s argument for [evolution](#) ^[4] by [natural selection](#) ^[5]. His work on [prosimians](#) ^[6], a group of primates excluding apes and monkeys, helped scientists better investigate the Primate group. In his work *On the Genesis of Species*, Mivart argued that Darwin's 1859 theory couldn't explain how specific organismal forms developed and varied, explanations Mivart argued were necessary before Darwin could invoke the mechanism of [natural selection](#) ^[5] to explain the [evolution](#) ^[4] of species. To provide those explanations, Mivart proposed theories of individuation and of instinct.

Mivart was born on 30 November 1827 in London, England, to Caroline Georgina Cunningham and James Edward Mivart. Mivart attended Clapham Grammar School in London, England, before he transferred to Harrow School in northwest London. According to biographers, he was bullied by upperclassmen at Harrow and the school did little to foster his intellectual development. After ten months of study at Harrow, he transferred to King's College at London to prepare for Oxford University, in Oxford, England. In 1844 at the age of seventeen Mivart converted to Catholicism. His conversion to Catholicism made attendance at Oxford, or any other university, impossible because Oxford didn't admit Catholics, and it required all students to pass a test about religious convictions before they matriculated.

Because of the prohibition against Catholic students at Oxford, Mivart attended St. Mary's College at Oscott, a Catholic school in Birmingham, England, that he started in October of 1844. In January 1846, Mivart began studying law at Lincon's Inn in London. And in January 1851, he fulfilled the requirements for the degree of barrister-at-law. However, he never pursued this profession any further, but instead studied the natural sciences.

Mivart met [Thomas Henry Huxley](#) ^[7], then a professor of [natural history](#) ^[8] at the Royal School of Mines, in Imperial College London, at the Royal Institution in London in January of 1858. Two years after their first encounter, Mivart became Huxley's student and regularly attended his lectures at the School of Mines.

Between 1864 and 1870, Mivart published at least twenty-three articles. The bulk of these papers dealt with research on the relationships among Primate species. He devoted most of his time to the classification of Primates by comparing the body parts of specimens from different species. Investigation into these relationships led to a series of papers in which Mivart investigated the osteology, or the study of bones, of Primates. Mivart was a member of a number of scientific organizations. In 1849 he became a member of the Royal Institution of London, and in 1858 a fellow of the Zoological Society of London. He was also elected a Fellow of the Linnaean society of London in 1862. And in 1869 Mivart became a fellow of the Fellowship of the Royal Society of London for his work on parts of the skeletal structure of Primates.

In 1871, he published *On the Genesis of Species*, in which he criticized Darwin's 1859 theory of [natural selection](#) ^[5]. Mivart argued that [natural selection](#) ^[5] could not produce structures as complex as the vertebrate eye, because the beginning stages of the structure would serve no purpose until all of its components were present. In this text he proposed a mechanism for [evolution](#) ^[4]: a power inherent in individuals, which he termed individuation, by which a living organism builds up its being. He also argued that human intellect was a result of divine power, denying a natural explanation of mind. This position estranged him from Huxley and other Darwinians.

In 1884, Mivart proposed to explain the development of individuals and of species with a common cause, which he said was instinct. Instincts, Mivart said, were roughly unreasoned urges that propelled organisms to perform actions that benefited the organisms or other organisms in their species. He said that [instincts](#) ^[9] explained many other biological processes, such as reflex actions and regeneration. He also argued that scientists could appeal to instinct as a formal cause, in something like [Aristotle](#) ^[10]'s sense, to explain the activity of embryos as they remolded themselves into different forms as they developed. Only [instincts](#) ^[9] and not [natural selection](#) ^[5], Mivart claimed, could formally cause embryos to develop characters and parts that could benefit them as adult organisms. Instincts enabled embryos within a species to vary from one another, and to provide varied organisms on which [natural selection](#) ^[5] could destroy individuals unfit to their environments. Thus, to explain how species evolved from one another, Mivart ceded [natural selection](#) ^[5] as an environmental and efficient cause, but he proposed the [instincts](#) ^[9] within the individual organisms as a formal cause.

Mivart tried to reconcile his Catholicism with his interpretation of biological science. Neither his scientific nor his religious contemporaries accepted Mivart's reconciliation theories, and some of publications on those theories ended up on the Vatican's list of forbidden readings. In 1900, six weeks before he died on 1 April, Mivart was excommunicated from the Catholic Church by Cardinal Vaughan.

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