

# Isidore Geoffroy Saint-Hilaire (1805-1861)

Isidore Geoffroy Saint-Hilaire studied anatomy and congenital abnormalities in humans and other animals in nineteenth century France. Under the tutelage of his father, Étienne Geoffroy Saint-Hilaire, Isidore compiled and built on his father's studies of individuals with developmental malformations, then called monstrosities. In 1832, Isidore published *Histoire générale et particulière des anomalies de l'organisation chez l'homme et les animaux* (General and Particular History of Structural Monstrosities in Man and Animals), in which he defined the term teratology as the study of birth defects and deformities. Isidore Geoffroy Saint-Hilaire helped establish teratology as a branch of scientific study.

Isidore Geoffroy Saint-Hilaire was born on 16 December 1805 in Paris, France, at the Museum of Natural History. His mother Pauline Brière de Mondétour and father Étienne Geoffroy Saint-Hilaire had three children in all, Isidore being the eldest. His other two siblings were twin sisters, Anaïs and Stéphanie. Many described Geoffroy Saint-Hilaire as an intellectually gifted child with a great aptitude to learn. As his father studied the natural sciences, Geoffroy Saint-Hilaire was exposed to museums throughout his childhood, and he developed an affinity for and a familiarity with the natural sciences. His father hoped to see his only son succeed him in the natural sciences, in spite of his son's initial plan to focus on mathematics. In 1824, Isidore regularly assisted in his father's laboratory at the Muséum d'Histoire Naturelle (Museum of Natural History) in Paris when he was nineteen. During his time in his father's laboratory, Isidore focused his studies on mammals and birds. Later that year, he published his first article, a piece on a then-newly discovered species of bat (*Nyctinomus brasiliensis*, now *Tadarida brasiliensis*).

Isidore continued to work in his father's lab while defining his own research interests. In 1826, he contributed a variety of encyclopedic entries on different reptile and mammal genera and species to the tenth volume of the *Dictionnaire Classique d'Histoire Naturelle* (Classical Dictionary of Natural History). In April that same year, Geoffroy Saint-Hilaire published *Considérations Générales Sur Les Mammifères* (General Considerations on the Class of Mammals), which consisted of two articles he wrote for the *Dictionnaire Classique*.

In 1829, at the age of twenty-four, Geoffroy Saint-Hilaire's experience studying birds helped him secure a professorship of ornithology at the Muséum d'Histoire Naturelle. In 1830, he gave a series of lectures on the interactions between different animal species and their roles within the environment. He also lectured about birds at the Athéneé Royal de Paris in Paris. Between late 1929 and early 1930, Geoffroy Saint-Hilaire's sister Anaïs died at the age of nineteen. On 20 March 1830, at age twenty-five, Geoffroy Saint-Hilaire married Louise Blacque-Belair (Blagne), with whom he had two children, Albert and Pauline Anaïs, the latter named in his mother and sister's honors. Albert later directed the Jardin Zoologique d'Acclimatation (Zoological Garden) in Paris, an institution founded by his father in 1854.

Motivated by his father's lifelong work on the subject, Geoffroy Saint-Hilaire wrote a comprehensive collection on the topic of what researchers then called monsters, titled *Histoire générale et particulière des anomalies de l'organisation chez l'homme et les animaux* (General and Particular History of Structural Monstrosities in Man and Animals). Commonly called the *Traité de tératologie* (Treatise on Teratology), Geoffroy Saint-Hilaire worked on the treatise for about four years, releasing the first volume in 1832 and the third and final volume of the series in 1836. In *Treatise on Teratology*, Geoffroy Saint-Hilaire introduced the term *tératologie*, designating it as the study of congenital anomalies. The treatise describes various teratological studies that Geoffroy Saint-Hilaire's predecessors and colleagues performed along with his own observations of mammal hybridization and

birth abnormalities. For example, he studied animals with both male and female reproductive organs (hermaphrodites) and parasitic conjoined twins (omphalotes). The publication of his *Treatise* better enabled researchers to empirically study the causes of developmental anomalies, rather than attributing such anomalies to supernatural forces. Geoffroy Saint-Hilaire's work inspired many teratological studies, especially in the late nineteenth century, such as Camille Dareste's 1877 work on recreating malformations in lab animals.

In 1833, Geoffroy Saint-Hilaire joined the Académie des Sciences (French Academy of Sciences) at age twenty-seven. There he taught and performed administrative duties for the academic society. Geoffroy Saint-Hilaire eventually replaced his father as professor at the Faculté des Sciences in Paris in 1837 and as professor at the Muséum d'Histoire Naturelle in 1841, after his father lost his vision in 1840. He also assumed the title of inspector of general education in Paris in 1844, the year his father died. Geoffroy Saint-Hilaire balanced his scientific research with an increased teaching and administrative workload. He published *Essais de zoologie générale* (Essays in General Zoology) in 1841 and *Vie, travaux et doctrine scientifique d'Étienne Geoffroy Saint-Hilaire* (Life, works and scientific doctrine of Étienne Geoffroy Saint-Hilaire) in 1847. In 1849, he published *Acclimatation et domestication des animaux utiles* (Acclimatization and domestication of useful animals), a book about how to assimilate animals into new environments and how the animals respond to gradual or immediate changes in their environment. Geoffroy Saint-Hilaire then established La Société Zoologique d'Acclimatation (The Zoological Society of Acclimatization), a society dedicated to study biodiversity and the effects of introduced species, in Paris in 1854.

After 1854, Geoffroy Saint-Hilaire focused on overseeing the society's operations as its president. Geoffroy Saint-Hilaire's wife, Louis, died on 20 November 1855. In 1856, members of the Academy of Sciences in Paris elected Geoffroy Saint-Hilaire its president. On 13 June 1860, five years after the death of his wife, his last remaining sister Stéphanie died. Afterward, he immersed himself in his work. In November of 1860, Geoffroy Saint-Hilaire noted that he had been experiencing extreme levels of fatigue, which caused him to miss significant time at work intermittently until his death. On 10 November 1861 he died from an undisclosed illness in the same room in which he was born fifty-five years prior.

## Sources

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