

## The Blind Cave Fish that Never Was

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*In 1748 a French aristocrat thought he had discovered the first blind, subterranean fish ever. His discovery was never acknowledged ... and it may never be.*

### THE MAN

Marc-René Marquis de Montalembert had a rather odd background for a man who was about to claim to be the discoverer of the first blind, subterranean fish. Born in Angoulême on July 16, 1714, he belonged to a distinguished family with an illustrious military tradition whose origins can be traced to the "chevaliers" of St. Louis' Crusade of 1249. He received an education typical of his times and social status, entering military service at the age of 18. He distinguished himself in the War of the Polish Succession (1733-1738), the War of the Austrian Succession (1740-1748), and the Seven Years' War (1756-1763). Despite his brilliant military career, Montalembert's heart was in engineering. By the time he was admitted to the prestigious Paris Academy of Sciences in 1747, he had already written about water evaporation and he had developed a good professional relationship with the famous French physicist Lazare Carnot. After the Seven Years' War, he distinguished himself in the field of fortification, which became the passion for the rest of his life. He wrote an eleven-volume treatise (*La Fortification Perpendiculaire*), a very controversial but influential work where he proposed the "polygonal" method of fortification. His design replaced the complex star-shaped fortresses sponsored by Sébastien de Vauban with a simplified polygonal structure that became the standard European fortification system of the early 19th century. His private life was also filled with excitement. In 1770 he married Marie de Comarieu, a French socialite and amateur theater actress, for whom general Montalembert wrote a dramatic piece and later even wrote some operatic works. Despite his aristocratic roots, he embraced the principles of the French Revolution. Alarmed by the turn of political events, he moved to England between 1789 and 1790 and divorced. He remarried to Rosalie Louise Cadet by whom he had a daughter born in July 1796. He was dispossessed of his iron forges and obliged to sell his estate in Angoumois for very little money. With changes in the French political environment he regained his pension, became a consultant in military affairs, and was promoted to "général de division" in 1792, becoming the oldest general in the French

army. In 1797 he tried to become a member of the Class of Physical and Mathematical Sciences of the Institute of France (which was the reconstituted Academy of Sciences abolished during the Revolution), but withdrew his candidacy in favor of General Bonaparte. He died in Paris, on March 29, 1800, at the age of 86.

It was in 1748, a year after his admission to the Academie that he reported the discovery of a blind, subterranean fish in one of his properties in the Southwest of France.

### THE TIMES

The XVIII Century was a time of flourishing and expanding scientific activity. The historian Roger Hahn has written, "science was the passion of the century at all literate levels of society, in every urban center of France, and even among the progressively minded gentlemen-farmers." Under these circumstances the Paris Academy of Sciences reached its peak. Founded in 1666, it was definitively organized in 1699. From then on the Academy developed as one of the most prestigious institutions of Europe until the French Revolution suppressed it in 1793. Two years later it was reorganized as a branch of the Institut de France. In 1816 it was again reconstituted as Académie royale de Sciences. The first half of the 1700s is also an interesting time for the natural sciences. Impressed by the expeditions to the New World and the less-than-reliable tales of explorers, the Old World was extremely interested in rare creatures. In the 1720s, for example, anatomy, and especially grotesque embryonic monsters, were in vogue. Prior to the French Revolution (1789), "cabinets" (collections) of natural history were extremely popular; in Paris there were more than 200 private collections alone.

### THE FISH

There is no wonder that these times were the right ones to report such odd things as blind and one-eyed fishes. And that was what Montalembert did. In his report of 1748 to the Academy (which was not printed until 1752) he wrote:

*In a spring at Gabard, Angoumois, near one of (Montalembert's) estates, it is common to fish either blind or one-eyed pike; one-eyed ones always miss the right eye and among the blind ones, the right eye seems further reduced than the left eyes. This spring is a kind of bottomless pit. There are small groups of floating plants at the surface, which impede the use of fishing lines, and*



*makes fishing a long and difficult process.*

However, Montalembert was fortunate enough to capture a young pike with its right eye missing. This spring drains its water into the Lissone river, but despite this connection, the local people say that one-eyed or blind pikes are never fished in the river, while the spring contains one-eyed or blind ones only.

### WHAT WAS IT?

Montalembert's alleged discovery is more interesting and surprising than most people may think. While there have been some reports around the world of blind, depigmented fish that come out of springs and wells, the fact of the matter is that to this day, no blind, subterranean fish has ever been reported from Europe—without question the continent whose caves have been most intensely explored. Although Jacques Besson, another French Engineer, claimed in his 1569 book to have observed "small eels" living in subterranean waters in France, he never said they were blind or depigmented). Montalembert said that what he saw was a pike. That, by itself, is not surprising. The pike (*Esox lucius*) is, by far, the most common freshwater fish of the Northern Hemisphere. The fact that this fish can be identified as a pike despite being blind, is not surprising either. Many subterranean fishes are very much identical to their surface (what speleologists call "epigeal") forms, except for the lack of eyes and pigmentation. But here comes the other puzzling fact from Montalembert's description. Reduction of eyes and pigmentation always goes hand in hand among subterranean species of animals. The more reduced the eyes are, the less the pigmentation. Yet Montalembert never mentioned the latter, which should have been a very peculiar and unusual feature. Furthermore, he says that some of the fish lacked one eye and when that was the case,

it was always the one on the right side. Which leads us to wonder: were these pikes really blind because of their adaptation to the subterranean environment or due to some other phenomenon? The only other way that a fish may become blind due to natural causes is because of some disease. A number of parasites which damage fish eyes have been described.

However, there are two problems with this explanation. The first one is that, as far as I know, such a type of disease has never been reported for the pike. But let's concede that what Montalembert observed was a peculiar disease for a particular location.

The second objection, however, seems more formidable. Why was it always the right eye that was missing? When parasites attack the eyes of fishes (or other animals), they tend to infect both eyes and certainly have no preferences for a particular side.

So, what was it? All of these questions lead us to two possible explanations: First, Montalembert observed a real but yet very strange phenomenon that nobody else has been able to observe again. Second, the Marquis was, indeed, a sloppy observer and a very amateurish naturalist (even by the standards of his times; after all, his only natural history article is on this fish). His description leaves us with more questions

than answers. Following Ockham's Razor (the simplest explanation should be the correct one), we should assume that what he left us was the product of his careless observations. Yet, it would be worthwhile to try to find Montalembert's fish and reconstruct what he really saw. After all this may be the only blind, subterranean fish of Europe and the only one-eyed specimen ever reported in the history of science!

The first problem is that, apparently, he left no drawings, much less a preserved specimen. Then, why not go to the same location and try to collect new ones? And now comes the second problem: Nobody knows where that locality, Gabard, is! Neither the countless hours I spent examining old and modern maps of the area, nor the studies that Prof. Janis Langins of the University of Toronto (and the expert on Montalembert) has ever yielded that location or any mention of it. What may have been a great historical discovery will remain, at least for the time being, as a simple curiosity. As Montalembert's compatriots would say, *c'est la vie!*

PS: If you've ever seen a blind or one-eyed pike (or any other type of unusual cave fish for that matter), please contact the author at [romero@macalester.edu](mailto:romero@macalester.edu).

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