

THE AMERICAN BIOLOGY TEACHER



About Our Cover

In our annual issue saluting Darwin and evolution, there could be no more appropriate image to grace our cover than that of a fossil, particularly a dramatic one like these ammonites on display in the *Haus der Natur* of Salzburg, Austria.

Ammonites are a type of extinct mollusk in the class Cephalopoda, related to living forms such as the nautilus, squid, and octopus. These fossils were named "ammonites" by naturalist Pliny the Elder, who was reminded of the curved rams' horns often depicted on the Egyptian god Ammon. Most ammonites were of modest size, but some in the genus *Pachydiscus* were massive, reaching 1.7 m in diameter. Just imagine such creatures sailing the ancient seas with a giant squid-like head protruding from the shell, capturing food with massive tentacles, moving along using jet propulsion.

Ammonites first appeared in the Devonian period, dying out ~66 million years ago as another causality of the great Cretaceous extinction that also ended the reign of the dinosaurs. The time horizon for ammonites makes them excellent index fossils, permitting paleontologists to accurately date the layers in which they are found. Even greater precision of dating can be accomplished by examining the distribution of particular species or genera.

Darwin was well aware of ammonites. In his geological notes from *Voyage of the Beagle*, there are dozens of references to South American ammonites linked to the rock types and other fossils with which they were found. In his book on the *Geology of Volcanic Islands*, Darwin notes that one of his colleagues remarked that "A. simplex, an Ammonite...being identical (as far as its imperfect condition allows of comparison) with the A. simplex of Europe... belongs to an early stage of the Cretaceous system." This is a clear example, >150 years ago, of the use of index fossils by Darwin and his fellow naturalists to date rock layers and to show continuity of life-forms across great geographic distances.

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