

h8 Mesozoic cephalopods < extinctions and side ramifications of evolution >

For he that hath, to him shall be given, and he shall abound: but he that hath not, from him shall be taken away that also which he hath.

—Matthew 13:12, *Douay-Rheims version*.¹

Two nautiloid cephalopod genera persist but, as they might have, ammonoid cephalopods have not re-evolved from them. The boundary between Cenozoic and Mesozoic eras was originally established in marine strata by noting the final and complete extinction (**Figure h8.1**) of diverse, widely dispersed, and long abundant, ammonoid cephalopods (**Figure h8.2**) and the belemnites. In terrestrial strata, the same boundary was found to be coincident with the final and complete extinction of non-avian dinosaurs.

Within the Mesozoic Era, ammonite ammonoids evolved and diversified; some, during the Cretaceous Period, into bizarre forms (heteromorph ammonoids) fancifully cited in the old literature as evidence of species senescence.² Their radiation had begun early in the Jurassic Period from a few deepwater species of nautiloids and ammonite ammonoids that survived end-Triassic Period extinctions. The Jurassic-Triassic boundary, in marine strata, was originally established by noting the final and complete extinction of ceratite ammonoids at the end of the Triassic.³ Likewise, the boundary between the Mesozoic and the Paleozoic eras was originally established by noting the near extinction of the ammonoids at the end of the Paleozoic Era when only a few, deepwater, species of ceratite ammonoids survived.

So, in cephalopod evolution, new groups ramify into different ecological niches and then fail. The image is of vigorous side branching and dying of these new whilst the ancestral group continues. This betters the image of evolution by a Matthew effect in which a fitter group flourishes, whilst the ancestral group, necessarily, loses out and goes extinct.⁴ □

Figure h8.1⁵

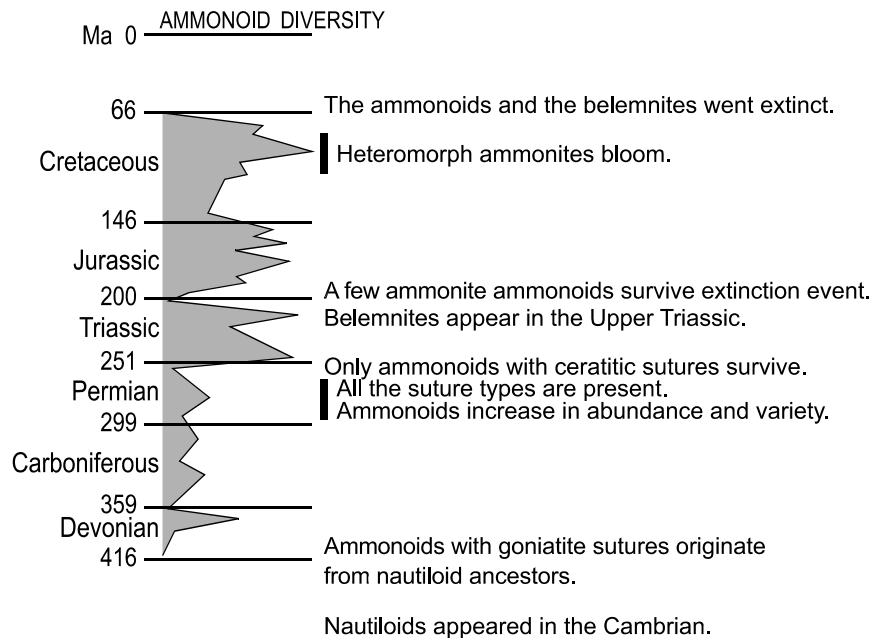


Figure h8.2

AMMONOID TYPES

ammonite ammonoid has crinkles on all portions of septal folds



ceratite ammonoid has crinkles on alternating septal folds



goniatite ammonoid has smooth septal folds

