PHYLOGENY OF THE "POST-TRIASSIC" NAUTILOIDS
Engeser, Theo
Institut für Paläontologie, FU Berlin, Malteserstr.74-100, D-12249 Berlin, Germany
engeser@zedat.fu-berlin.de

The "Post-Triassic" nautiloids (mostly systematized as suborder Nautilina) form a well-known systematic unit within the Nautiloidea which ranges from the beginning of the Jurassic to Recent. Triassic representatives of Cenoceras lack the characters outlined below and are therefore excluded from the suborder Nautilina. However, the monophyly of suborder Nautilina has still to be demonstrated. Within a phylogenetic analysis that uses data from about half of the described genera two subunits of the "Post-Triassic" nautiloids are recognizable which can be demonstrated to be monophyletic; the family or superfamily Nautilidae/oidea Rafinesque-Schmalz, 1815 (incl. Cenoceratidae, Cymatoceratidae pars (?), Heminautilidae, Paracenoceratidae, Pseudaganididae, Pseudonautilidae) and the Aturiidae/oidea Chapman, 1857 (incl. Eutrephoceratidae, Hercoglossidae).

The family/superfamily Nautilidae/oidea is characterized by comparatively large embryonic conchs (minimum 1.5 cm in diameter in small species), 5 septa, and slightly curved embryonic conch which usually leaves a large "umbilical" gap.

The family/superfamily Aturiidae/oidea is characterized by comparatively large embryonic conchs (max. 1.0 cm in diameter), tightly coiled embryonic conchs leaving only a very small "umbilical" gap.

A character that is unique within these two groups compared with other "Pre-Jurassic" nautiloids and that is shared only by these two units has not yet be found. It might be that these two lineages independently crossed the Triassic/Jurassic.

Plesiomorphic characters that are presumably present in both groups are: an extremely yolk-rich development compared with the Neocephalopoda (Sphaerorthocerida, Bactritida, Ammonoidea, Coleoidea), a radula with 13 elements (known since Carboniferous), calcified beaks (since Triassic, probably Permian), "many" arms, funnel with two folds, pin hole eye, 4 gills a.o., to mention just the more important features.

Within the family/superfamily Aturiidae/oidea we have again two lineages, the family/subfamily Eutrephoceratidae/Aturiiidae with almost straight sutures, and the Aturiidae/Aturiiinae with a tendency to increase the folding of the sutures.

The units within the (super-)family Nautilidae/oidea can be characterized by conch form and moderate ornamentation. The Recent genera Nautilus and Allonautilus form an independent off-shoot that is easily characterized by several unique features (e.g. 7 septa at hatching, "protoseptum")

The ancestor of the Nautilina (or ancestors, if not monophyletic) may have derived from a Triassic nautiloid group with smooth conchs such as the Syringonautilidae.