



Coral accretion on ammonoids - Autecological implications from different Lower Cretaceous fossil groups (Dolomites, Southern Alps, Italy)

A. Lukeneder

Natural History Museum, Geological-Palaeontological Department, Burgring 7, A-1010 Wien, Austria (alexander.lukeneder@nhm-wien.ac.at / fax: +34 (1) 52177 - 459 / Phone: +34 (1) 52177 251)

Lower Cretaceous ammonoids (424) represent almost the totality of the macrofauna (85 %) at the Puez locality in the Dolomites of Southern Tyrol. The cephalopod fauna from the marly limestones to marls here indicates Late Valanginian to Early Aptian age. The ammonoids are well preserved (mostly in concretions) and appear as steinkerns without shell. The very abundant and generally well-preserved assemblage consists of 27 genera: from phylloceratids *Phylloceras*, *Phyllopachyceras*, from lytoceratids *Lytoceras*, *Eulytoceras*, *Protetragonites*, *Leptotetragonites*; from ammonitids *Neolissoceras*, *Barremites*, *Melchiorites*, *Abrytusites*, *Neocomites*, *Criosarasinella*, *Kilianella*, *Olcostephanus*, *Silesites*, *Jeanthieuloyites*, *Heinzia*, *Discoidellia*, *Acanthodiscus* and from the ancyloceratids *Pseudothurmannia*, *Macroscaphites*, *Dis-similites*, *Acrioceras*, *Crioceratites*, *Anahamulina*, *Hamulina*, *Ancyloceras*. The ammonoid fauna contains only descendants of the Mediterranean Province (Tethyan Realm).

The extraordinarily rich invertebrate fauna consists of ammonoids, ammonoid jaws (aptychi), coleoids, bivalves, brachiopods, serpulids, sea urchins, ophiurids, corals, benthic/planktonic foraminifera and radiolarians. The benthic macrofossils observed in the ammonoid beds comprise bivalves, brachiopods and, surprisingly, corals. Huge number of encrusting species like serpulids and corals were examined.

The most exciting feature of the fauna is the fact that solitary corals lived on ammonoid shells during the Lower Cretaceous of the Dolomites. This is not known from other sediments and localities through time and space. The relation between the latter fossil

groups is reported for the first time from the Lower Cretaceous.

In most cases only the round bottom plate of the corals is visible attached to the steinkerns of the ammonoids. Only rare specimens (2) show three-dimensional preservation of the coral body with its septa. All kinds of ammonoids are attached with relics of solitary corals: lytoceratids, phylloceratids, ammonitids and ancyloceratids, ribbed species as well as smooth species. Therefore a secondary hard ground is needed for settling.

The morphology is similar to that of Upper Cretaceous solitary corals like *Connolites* or *Micrabacia*. Bottom discs are from 2 mm up to 4 cm in diameter. Internal structures, septa and composition, are comparable with the latter species. Despite these similar features it is not known from corals like *Connolites* or *Micrabacia* that they could have lived on ammonoid shells or even 'normal' hardgrounds.

The described solitary corals needed some time to grow up to a maximal size of 4 cm in diameter. This shows that corals and other encrusters had enough time to overgrow the different shells. The number of about 20 corals attached on ammonoid shells shows that this is common at the Puez locality. A single ammonoid shell could be attached by up to 6 corals on it.

The main focus of future studies of the Puez area will be on the palaeoecology and synecology of the cephalopod fauna of the Puez section. It focuses on the autecological features exhibited by different fossil groups (annelids, bryozoans, foraminifera, corals) on ammonoid shells, which act as cryptic habitats for different encrusters in the Lower Cretaceous of the Puez locality.