LOWER CRETACEOUS AMMONOIDS AS ISLANDS FOR CORALS (DOLOMITES, SOUTHERN ALPS, ITALY)

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Early 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*, *Dissimilites*, *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 of *Cycloseris* sp. lived on ammonoid shells during the Early 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 Early 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 hard substrate must have been available for the epibionts over a quite long time so that they had enough time to settle and grow.

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. Serial thin sections were made and show remarkable differences from other known solitary corals. 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, stratigraphy and synecology of the cephalopod fauna of the Puez section.

A joint integrative high resolution project is planned between the Natural History Museum in Vienna and the "Natur Museum" in Bozen.

The multitasking background contains investigation on fields of macro- and microfossils, isotopes, litho-, cyclo-, magneto-and biostratigraphy as tools for investigating the Lower Cretaceous within the Dolomites. The ambition is to establish the Puez Area as a new key region of the Tethyan Realm.