STRATIGRAPHICAL INVESTIGATIONS OF TWO DIFFERENT FACIES (MAIOLICA VS. SCHRAMBACH FACIES; NORTHERN CALCAREOUS ALPS)

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Palaeoecological and sedimentological studies have been carried out in an outcrop in the Ternberg Nappe in Upper Austria. The assembled outcrop crosses the western part of the Losenstein Syncline. A single section measuring about 200 meters covers the complete Lower Cretaceous succession of the upper Steinmühl Formation (U.Berriasian - L.Valanginian), Schrambach Formation (L.Valanginian - U.Barremian) and Tannheim Formation (Aptian). Both mass-occurrences lie in strata of the Schrambach Formation.

The main goal of the presented work is to show microfossil distribution, microfacies (lithology), as well as macrofossil content (ammonites) as a tool for more detailed biostratigraphy of carbonate pelagic sequences as well as for the interpretation of the palaeoenvironmental conditions. After investigating the thin sections and microfossil material from the KB1 sequence, it seems to be clear that different lithologies observed around the Steinmühl Fm./Schrambach Fm. boundary are consequences of changes of the palaeooceanography and therefore reflect sea-level fluctuations during the Lower Cretaceous, especially within the Berriasian and Valanginian stages showed a relationship of sea-level transgressive stages favourable for dinocyst development and all destinguished acme concentrations of cyst taxa studied were controlled by sea-level highstand phase. On the other hand, cyst diversity reduction events coincided with ea-level regressive stages. Dinoflagellates formed a significant element of the marine phytoplankton during the Jurassic and Cretaceous, when they occurred throughout the world in open shelf, slope and basinal environments. Due to very favourable conditions for development of the planktonic associations, a rich and structured ecosystem could originate in the photic zone of the Tethyan Realm during this time. It seems that not only calpionellids but also calcareous dinoflagellates have belonged to planktonic elements sensitively recording a whole complex of environmental changes like climatic perturbations, nutrient distribution and sea-level fluctuations. The phase of drastic sea level falls is represented by the Maiolica like light grey "biomicritic wackestones" of the topmost Steinmühl Formation with an abundance of *Pygope cattuloi*. After this Lower Valanginian regressive phase we can observe a huge rise in sea level, manifested in the Upper Valanginian (Verrucosum Zone) succession of the lowermost Schrambach Formation, formed of light grey spotted limestones with marly intercalations, which are very fossiliferous in micro- and macrofossils.

As may be seen from investigations in the Upper Austrian Lower Cretaceous sequence percentages of Leiostraca reach 33% in the lower part of the Steinmühl Formation (Ammonitico rosso type limestone), respectively, whereas they reach an average of 1% to 5% in the overlaying Schrambach Formation (Fig. 57). These percentages may be interpreted as either indicating the presence of offshore (pelagic) influences or local post-mortem drift of the otherwise pelagic ammonites. The remaining stratigraphic units, with percentages of Leiostraca ranging from 1% to 10%, are all clearly a reflection of shelf or upper slope habitats, as also indicated by the ammonite genera analysis from the Vocontian Trough.

The changes in ammonite faunal spectra are thus a reflection of a complex of changes: (i) changes in pelagic (off-shore) influence; (ii) sedimentological changes relating to the prograding development of fan systems; (iii) eustatic changes in sea level. This change in the ammonoid spectrum shows a development from a deepwater-swell facies, represented by the red limestones of the Steinmühl Formation, to a more deeper-water basin facies reflected by the Schrambach Formation. There is a general agreement that the distribution of Phylloceratina and Lytoceratina and their relative abundance in the assemblage depends on communication with an open oceanic environment.