

The shallow marine sequence between Rifugio di Lambertenghi to Rifugio di Marinelli (Carnic Alps)

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The shallow marine succession of the Carnic Alps from just below Rifugio di Lambertenghi (Fig. 1) comprises the top of the massive stromatoporoid and coral limestone (Hohe Warte Lst), the peritidal Seewarte Lst and Lambertenghi Lst, the massive crinoidal limestone with tabulate and compound rugose corals of the Spinotti Lst (which is split into 4 units according to differing facies). A major part of the Spinotti Lst is only accessible via the Sentiero Spinotti trail. It continues across the ridge on the south side of Costone Stella (2200 m) with the Amphipora Lst (the basal unit of the Kellergrat Lst). According to SCHÖNLAUB et al. (2004) the sequence persists from mid Emsian to Givetian.

Recent sampling-campaigns along this section were based on the idea of gaining more information on the age by microfossils constraining the single units, and on the documentation of possible hidden unconformities either within the units or at the formation boundaries to define shallow marine correlatives to the deeper marine sequence (e.g. at Oberbuchach or Mount Findenig). During the past 2 years more than 650 rock samples were collected. A major part was used for microfacies analyses, stable isotopes and biostratigraphic investigations. Until now most of the samples dissolved for microfossils (each sample weighing between 2.5-6 kg) yielded no relevant conodont fauna, thus it appeared that we had to search for methods additionally to or other than biostratigraphy.

Following the sequence stratigraphic interpretation of BRETT in SCHÖNLAUB et al. (2004) it seems to be a reasonable way to correlate the neritic sequence (Kellerwand Nappe) with already well defined strata of the pelagic sequence (Rauchkofel Nappe). Distinctive lithological changes which can be interpreted as minor or major sea-level-changes and related to distinctive events known (and stratigraphically well constrained) from deeper marine sections suggest that peritidal units of both, the Seewarte and Lambertenghi Lst were deposited during the mid-upper Emsian, the Spinotti Lst during the Eifelian and the Amphipora Lst and Kellergrat Reef during the Givetian.

Due to lacking high resolution biostratigraphy we hope that a well documented log paired with integrative stratigraphy enables a better correlation. Therefore we started to study changes in taphonomic communities across the sequence boundaries, which are followed by tracing geochemical signals linked with gamma-ray spectrometry and MS-logs. First positive results could be obtained from investigations of Barrandian shallow marine deposits, where we achieved to document similar geochemical signals across the Eifelian Basal Choteč Event from both the neritic and pelagic sequence, which now should be evidenced in the Carnic Alps.

References:

SCHÖNLAUB, H.P., HISTON, K. & POHLER, S., (2004): The Palaeozoic of the Carnic Alps. - In: SCHÖNLAUB, H.P. (Ed.): Field Trip Carnic Alps Guidebook. June 23-24, 2004, Carinthia Austria. - Geologische Bundesanstalt, 40: 2-32.

Fig. 1: A. large gastropod from the Seewarte Limestone; B. Uppermost Silurian to Lower Devonian sequence of Mount Seewarte including following units: Megaerella Lst, Rauchkofel Lst, Hohe Warte Lst and Seewarte Lst (from left to right); C. peritidal sediments from the Lambertenghi Lst; D. stromatoporoid from the upper part of the Lambertenghi Lst; E. compound rugose corals near the base of the Spinotti Lst;

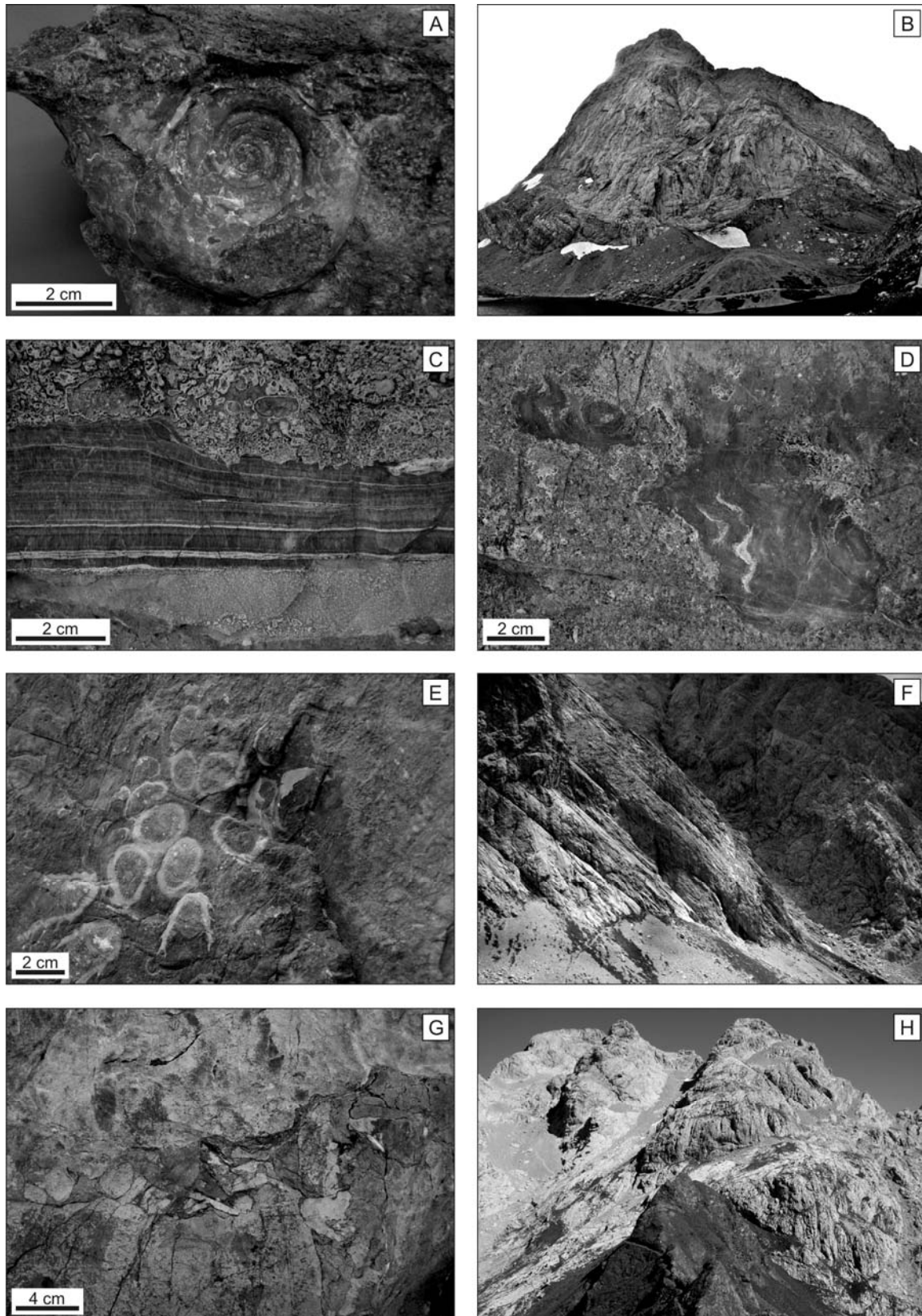


Fig. 1 continued: F. boundary of the well bedded limestones of the Lambertenghi Lst to the massive limestone of the Spinotti Lst; G. lithoclastic horizon (already yielding a Lower Carboniferous conodont fauna) at the top of the Kellergrat Lst which is located some hundred meters to the north below Rifugio di Marinelli; H. continuity of the Spinotti trail exposing the upper part of the Spinotti Lst (cliff-saddle left side of the photo), and the Kellergrat Lst (including the Amphipora Lst).

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