Stop 5 – Late Devonian Cephalopod Limestones in the Vicinity of Valentintörl

Hans Peter SCHÖNLAUB & Dieter KORN

West of the Valentintörl, the uppermost limestone beds at the southern slope of Mount Rauchkofel are exposed. The section is located close to the trail running from the Törl to Lake Wolayer. From this limestone succession representing the Pal Limestone of the Late Devonian, ammonoid faunas were recorded by FRECH (1902) and GAERTNER (1931). The old records could only in part be confirmed, and new collections show the following ammonoid assemblages:

Frasnian
Beloceras praecursor FRECH 1902, *Manticoceras* sp., *Ponticeras* sp.

Early and middle Famennian
Armatites sp., *Cheiloceras* sp., *Sporadoceras* sp., *Prolobites* sp., *Platyclymenia* sp., *Cyrtoclymenia* sp., *Rectoclymenia* sp.

Late Famennian
Alpinites kayseri (SCHINDEWOLF 1923)

Stop 6 – Valentintörl Section

Kathleen HISTON, Annalisa FERRETTI & Hans Peter SCHÖNLAUB

The section is exposed at the base of the steep western slope of Valentintörl (2138 m), a spectacular towering thrust sheet which forms the highest point of the Valentin pass (Fig. 30). Various lower Paleozoic sequences ranging from Late Ordovician to Early Carboniferous in age and representing different facies are fault bounded here as may be seen in a N-S section of the eastern side of the Mountain (Fig. 31). The sequence was initially studied by GEYER (1903) and later by GARTNER (1931) and SCHÖNLAUB (1970, 1971, 1980, 1985). The Upper Silurian sequence (Ludlow) corresponds broadly to the Plöcken facies (see SCHÖNLAUB & HISTON, this volume for environmental setting) with an irregular basal contact with the underlying Late Ordovician (Ashgill) **Wolayer Limestone.**

Only the conodont fauna has previously been studied from this section (SCHÖNLAUB, 1970, 1971) and the **Kok Formation** is first evidenced by the O. *crassa* Biozone (sensu WALLISER, 1964) documenting the Early Ludlow. A large hiatus exists therefore at the boundary as both the Llandovery and Wenlock conodont zones are missing. The 4.3 m calcareous sequence (Fig. 32) of reddish-grey predominantly micritic limestones is underlain by a Fe-Mn crust (Fig. 33) which is sometimes exposed as patches on the Wolayer Limestone.

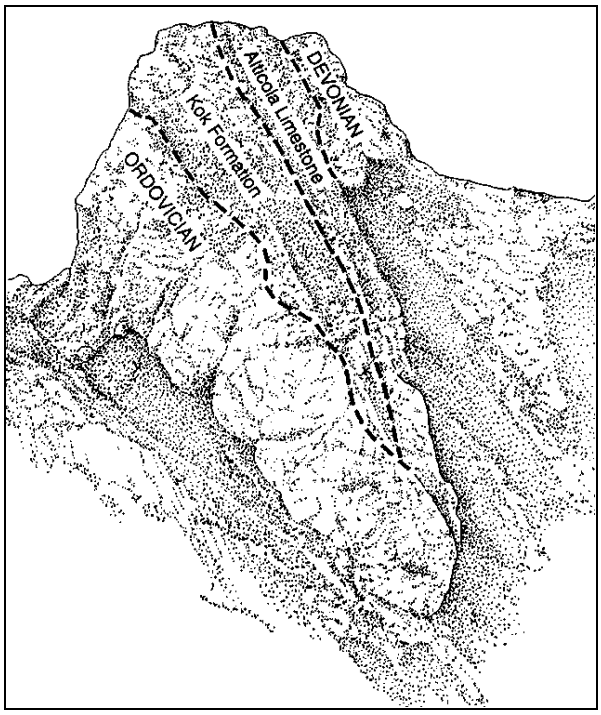

Fig. 30: View of the Valentintörl section from the west.

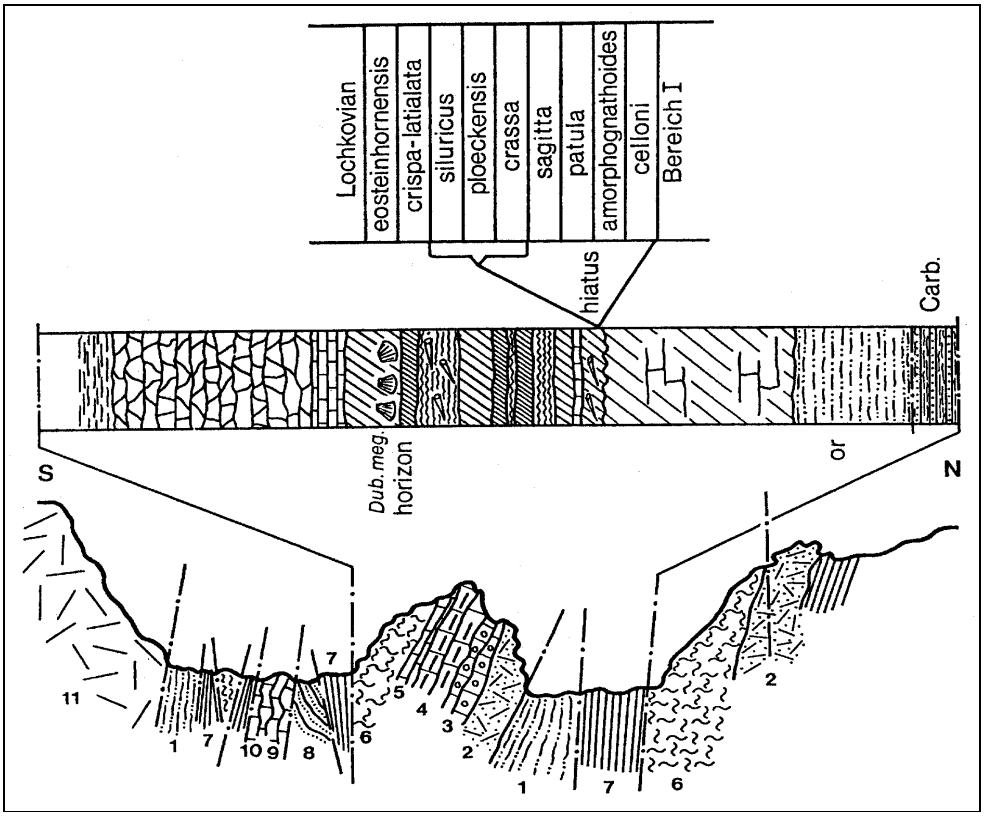

Fig. 31: N-S profile of Valentintörl from the east.
1: Uggwa shales (Ordovician); 2: Wolayer Lst. (Late Ordovician); 8: Himmelberg sandstone (Ordovician); 3, 9: Kok Fm. (Ludlow); 4: Alticola + Megaerella Lst. (Ludlow-Pridoli); 5: Rauchkofel Lst.; 6: Findenig Lst.; 7: Hochwipfel Fm.; 10: Devonian (unstudied); 11: Carboniferous (unstudied), (after SCHÖNLAUB, 1980).

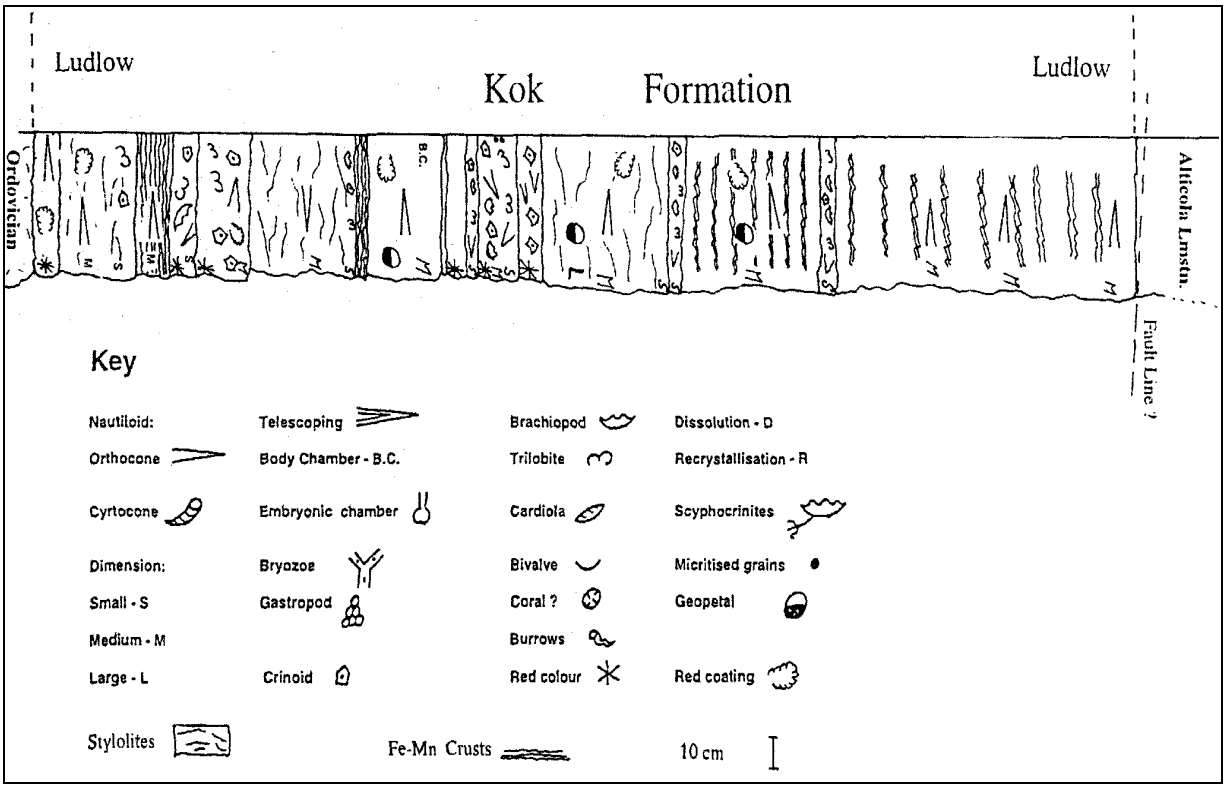

Fig. 32: Stratigraphic column of the Kok Formation, Valentintörl section.

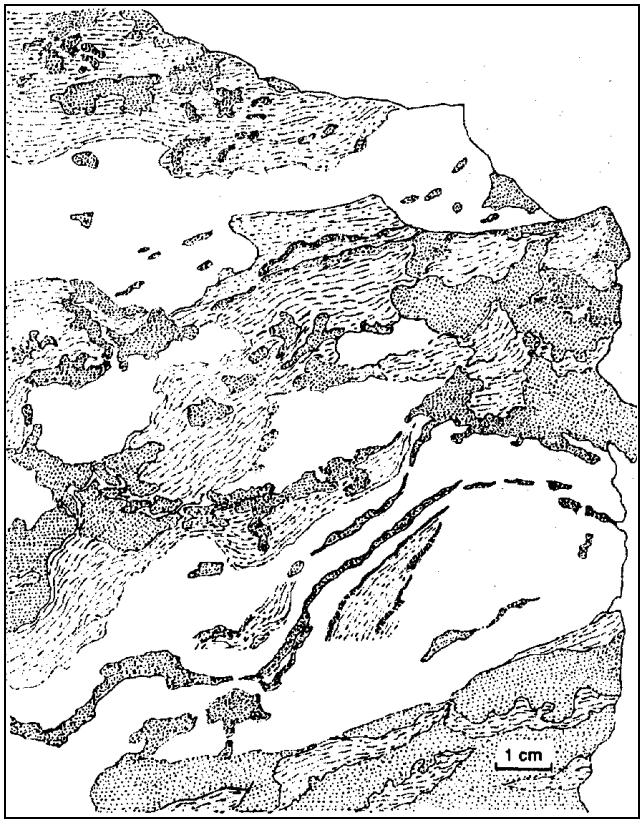

Fig. 33: Iron-rich mineralisation at the base of the Silurian.

Above the Ordovician / Silurian boundary a red micritic limestone with distinct red layering is developed with a sparse nautiloid fauna oriented parallel to bedding. The nautiloid fauna increases in abundance upwards in the section and a rich trilobite and crinoid fauna is seen. These two lower limestone horizons are capped by a 10-15 cm thick Fe-Mn crust which is distinctively blue-black in colour and contains nautiloid fragments within its laminations.

This is followed by a strata of biodetritus rich in echinoderm ossicles, trilobite and brachiopod fauna all with quite distinctive Fe coatings and seems to contain a juvenile nautiloid fauna. These horizons of juvenile fauna with biodetritus occur frequently thoughout the section. Reddening of the limestones is indicated in Fig. 32, as these "patches" or layered structures are quite prominent and frequent. The frequency of Fe-Mn crusts between the limestone strata increases from the middle to the top of the Kok Formation.

Two main limestone types have been preliminary observed in thin section. A trilobite wackestone-packstone showing echinoderm ossicles, rare small ostracodes, bryozoans, brachiopods, cephalopods and gastropods. The abundance of trilobites which appear to be complete or represented by large fragments is remarkable. Intensive and elaborated iron coatings and iron-staining are developed on the organisms, but iron is also quite widespread in the matrix (Fig. 33). No gradation, sorting or orientation is visible here. The dominance of benthic organisms and of iron-rich coverings of individuals characterize these sections.

A second type consists of faintly laminated wackestones with echinoderms representing fine biodebris associated with cephalopods. Rare gastropods, ostracodes, bivalves and small brachiopods have been observed in thin section. Iron is even there abundant, with echinoderm ossicles frequently showing iron-banded coatings and iron-staining.

The abundance of Fe-Mn crusts which sometimes are several centimetres thick and occur intermittently within the Kok Formation may be noted even in loose blocks in the debris along the path below the section.

The nautiloid fauna is quite abundant throughout the section and the preservation is similar to that of the Cellon and Rauchkofel Boden section with varying dimensions, orientation to bedding, presence of body chambers and levels of juvenile specimens which may be correlated at particular horizons. Body chambers and geopetals have been observed in certain beds and imply a more tranquil environment and little transport.

The faunal content has as yet not been systematically studied in detail.

The **Cardiola Formation** appears to be faulted out and the **Alticola Formation** has not been studied so far.