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Conodont and graptolites from the Oberbuchach I and Oberbuchach Ib sections (Katian – Lochkovian)

Hans Peter Schönlaub[1] & Carlo Corradini[2]

[1]Commission for Geosciences, Austrian Academy of Sciences, Dr. Ignaz Seipal-Platz 2, A-1010 Vienna, Austria. hp.schoenlaub@aon.at
[2]Dipartimento di Scienze Chimiche e Geologiche, Università di Cagliari, via Trentino 51, I-09127 Cagliari, Italy. corradin@unica.it

Locality *- Along the road connecting Gundersheim to the Gundersheimer Alm, at coordinates N 46°37´38˝, E 13°06´32˝.*
Lithostratigraphic unit *- Uqua Fm., Plocken Fm., Nölbling Fm., Alticola Fm., Rauchkofel Fm. and La Valute Fm.*
Age *- Katian (Upper Ordovician) - Lochkovian (Lower Devonian).*
What to see *- Reference section of the Nölbling Fm.*

How to get there

The Oberbuchach I and Ib sections are located at an altitude of 1120 m, south of the village of Gundersheim in the Gail Valley. The sections are exposed in the roadcut of a small road running from the Gail Valley near Gundersheim to Gundersheim Alm (Fig. 1).

Figure 1. Location map of the Oberbuchach I and Ib sections.

Historical outline

The sections were studied by Jaeger & Schönlaub (1980), who provided data on Silurian and Lochkovian graptolites and conodonts. Recently graptolites from the lower part of the section were studied by Storch & Schönlaub (2012).
The Oberbuchach I section is a Reference Section for the Nölbling Fm. (Schönlaub et al, 2015).

Lithology and fossil content

The section is subdivided into two parts: Oberbuchach I exposes rocks from Katian to basal Gorstian, Oberbuchach Ib was measured a few metres to the east, after the turn of the road, and is Pridoli to middle Lochkovian.
Section Oberbuchach I (Fig. 3) starts along a small side road with limestones of the Uqua Fm., not already investigated, followed by about 10 m of poorly bedded silty shales and muddy sandstones, belonging to the Plöcken Fm. which terminates with pyrite-bearing sandstones exposed where the road bends. Štorch & Schönlaub (2012) collected graptolites attributed to *Normalograptus* cf. *transgrediens* from a shaly horizon 50 cm below the top of the Plöcken Formation.
The section continues with a 0.5 m to 1 m thick bed of quartzite which subsequently passes upwards to the Nölbling Fm., represented by laminated dark-grey silty micaceous shale and black graptolitic

shale, with intercalated limestone beds and lenses. Graptolites and rarer conodonts have been collected from various levels throughout the unit (Jaeger & Schönlaub, 1980), indicating an age comprised between the Aeronian and the basal Gorstian (Fig. 3).
Section Oberbuchach Ib (Fig. 4) starts with a few beds of the Alticola Fm., that grades into the Rauchkofel Fm. The latter is represented by dark Orthoceratid limestone alternating to black graptolitic shales. The upper part of the section is represented by light gray limestone, at place nodular, with centimetric marly interbeddings, belonging to the La Valute Fm.

Figure 2. Views of the Oberbuchach I (**A**) and Ib (**B**) sections.

Conodonts
Conodonts have been collected from various levels throughout the section. In general, they are not abundant and the state of preservation is quite poor.
The original conodont collection by H.P. Schönlaub is stored at the Austrian Geological Survey in Vienna, and has been restudied for this paper.

Biostratigraphy
In the Oberbuchach I section the older limestone occurring in the Nölbling Fm. (sample 89) contains a typical association of the *Pt. celloni* Zone. Sample 90 can be attributed to the *Pt. am. amorphognathoides* Zone by the presence of the marker. Conodonts are rare in the upper part of the section and do not allow any firm biostratigraphic assignment.
The lower bed of Oberbuchach Ib section is assigned to the "*Oz. eosteinhornensis* s.s. horizon" (upper part of the Lower *O.e. detortus* Zone). Conodonts collected from the Rauchkofel Fm. allow to state a generic lower Lochkovian age. The entry of *A. carlsi* in sample 83/101 collected in the uppermost bed of the Rauchkofel Fm. marks the base of the *A. carlsi* Zone. The age of the Rauchkofel/La Valute formations transition at Oberbuchach Ib section is the same as in other sections more to the west in the Carnic Alps (e.g.: Rauchkofel Boden section, Schönlaub et al., 2017). Conodonts from La Valute Fm. suggests to attribute the unit to the *A. carlsi* Zone, even if a slightly younger age (*A. transitans* Zone) cannot be excluded for the upper part of the section.

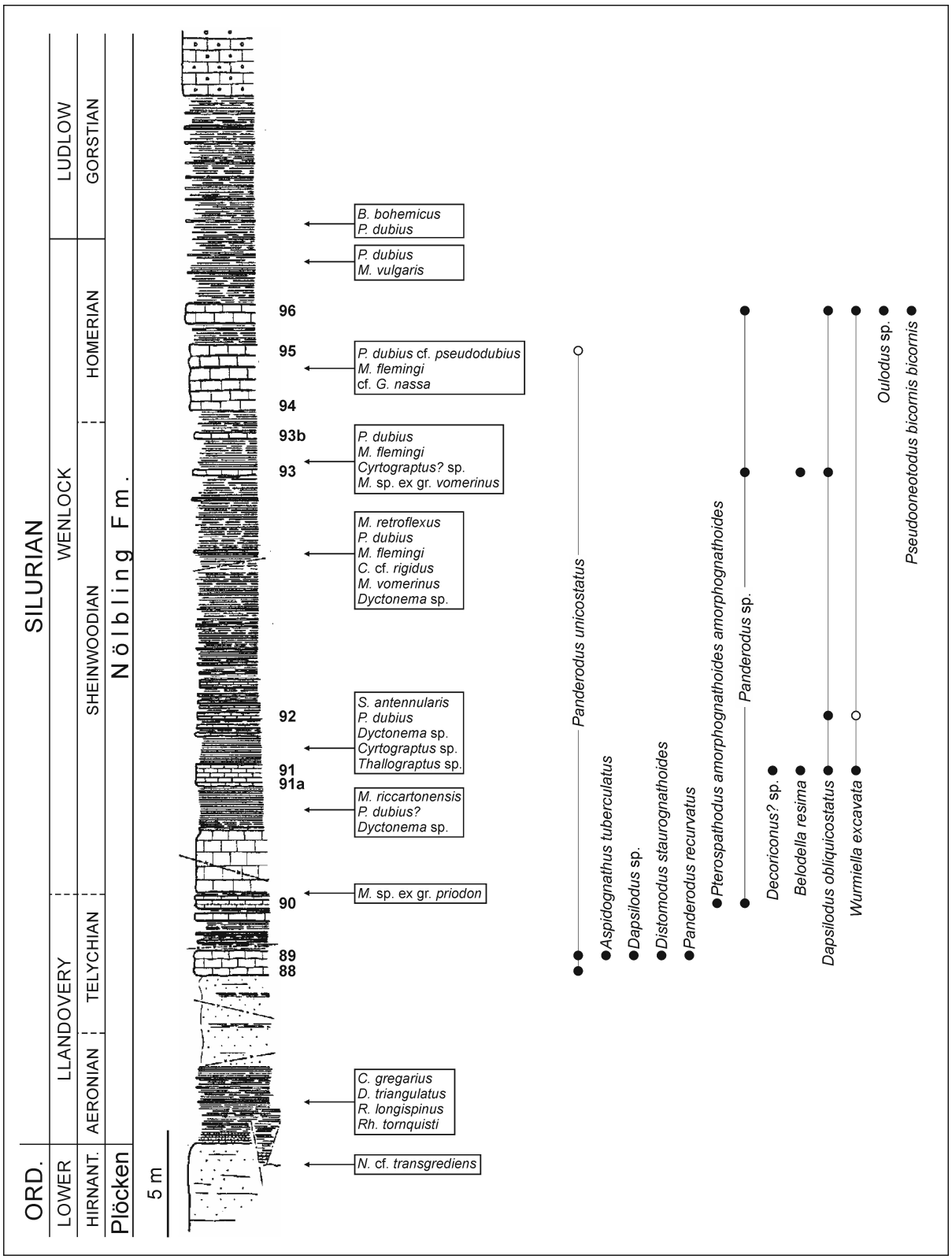

Figure 3. Stratigraphic column of the the Oberbuchach I section and occurrences of graptolites and conodonts. Log after Schönlaub (1994); graptolite data after Jaeger & Schönlaub (1980) and Štorch & Schönlaub (2012).

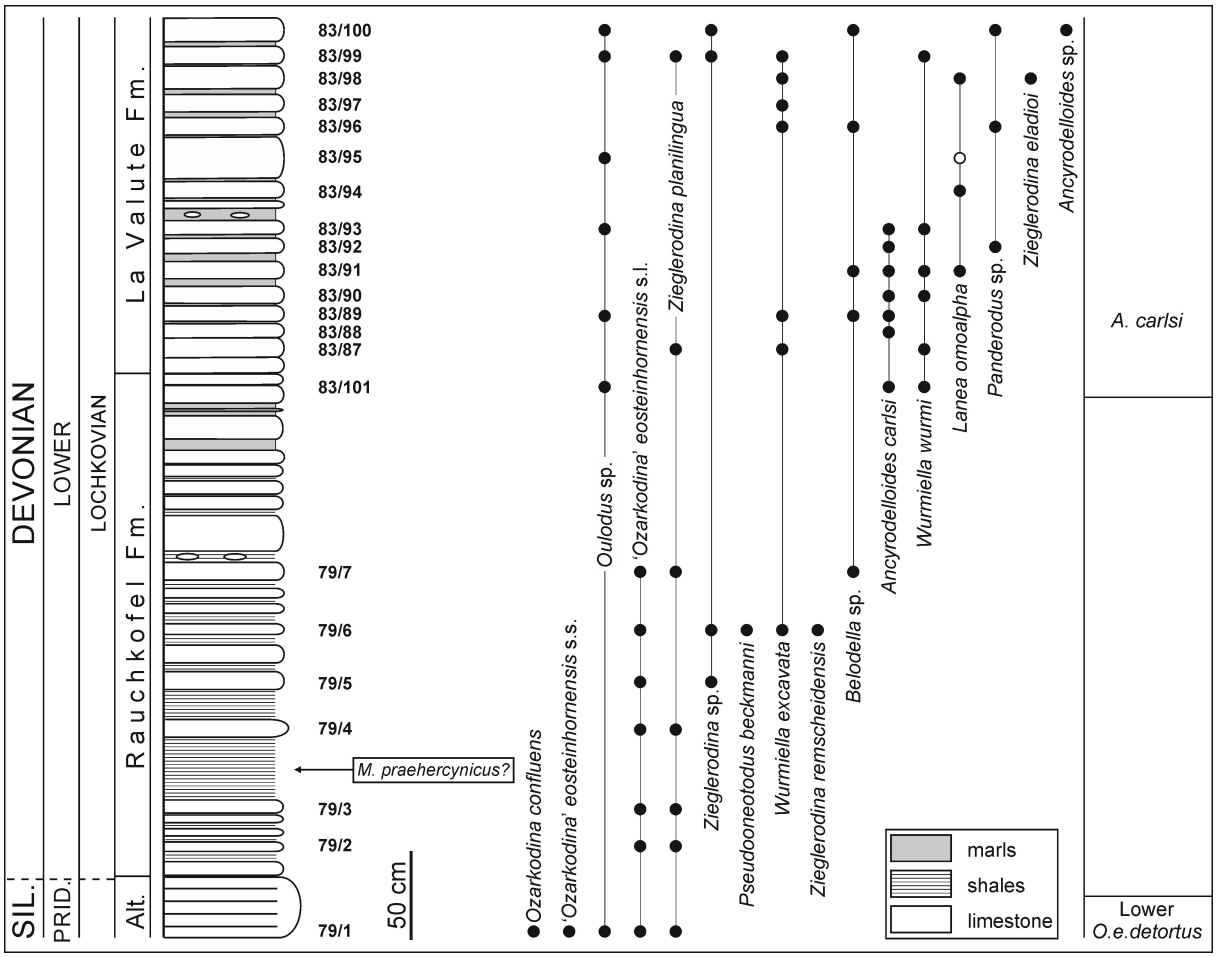

Figure 4. Stratigraphic column of the the Oberbuchach Ib section and occurrences of graptolites (after Jaeger & Schönlaub, 1980) and conodonts.

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