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Geological setting of the Türnitz region

In the vicinity of the village Turnsitz a very complicated pile of thinskin nappes is exposed representing the lowermost tectonic units of the Northern Calcareous Alps. The main structural elements of this region are the Upper Bajuvaricum (southern parts of the Lunz Nappe) and the Tirolicum (Sulzbach Nappe, Reisalpen Nappe). The borderline between this main tectonic units is developed north of Turnsitz (SPENGLER 1931; TOLLMANN 1976). The nappes are predominantly built up by Middle and Upper Triassic shallow-water carbonates.

Detailed geological investigations of this region started already in the early fifties of the last century in connection with exploration activities searching for pit coal in the Lunz Beds (LIPOLD 1865). At that time the geological survey (Geolog. Reichsanstalt) founded a collection containing hand specimens of typical rocks of this region. GÜMBEL (1873) used this collection when he carried out his early studies on thin sections of Triassic limestones. Also the essential base material used by GÜMBEL (1872: 274) for the foundation of the new species "*Gynoporella*" *pauciforata* was part of this collection.

Forty years later PIA started again with the investigation of the algae-bearing limestones of the Turnsitz region. His great luck was that his efforts were accompanied by the famous geologist E. SPENGLER, who mapped this region at that time in detail.

Stop 8(1)

Locality

Quarry 500 m SSE Kandlhof, Innerfahr-feld (between Freiland and Furthof).

Type region of *Physoporella pauciforata* (GÜMBEL 1872), *Physoporella minutula* (GÜMBEL 1872), *Oligoporella prisca* PIA (1912) and *Macroporella perforatissima* PIA (1920).

Topography

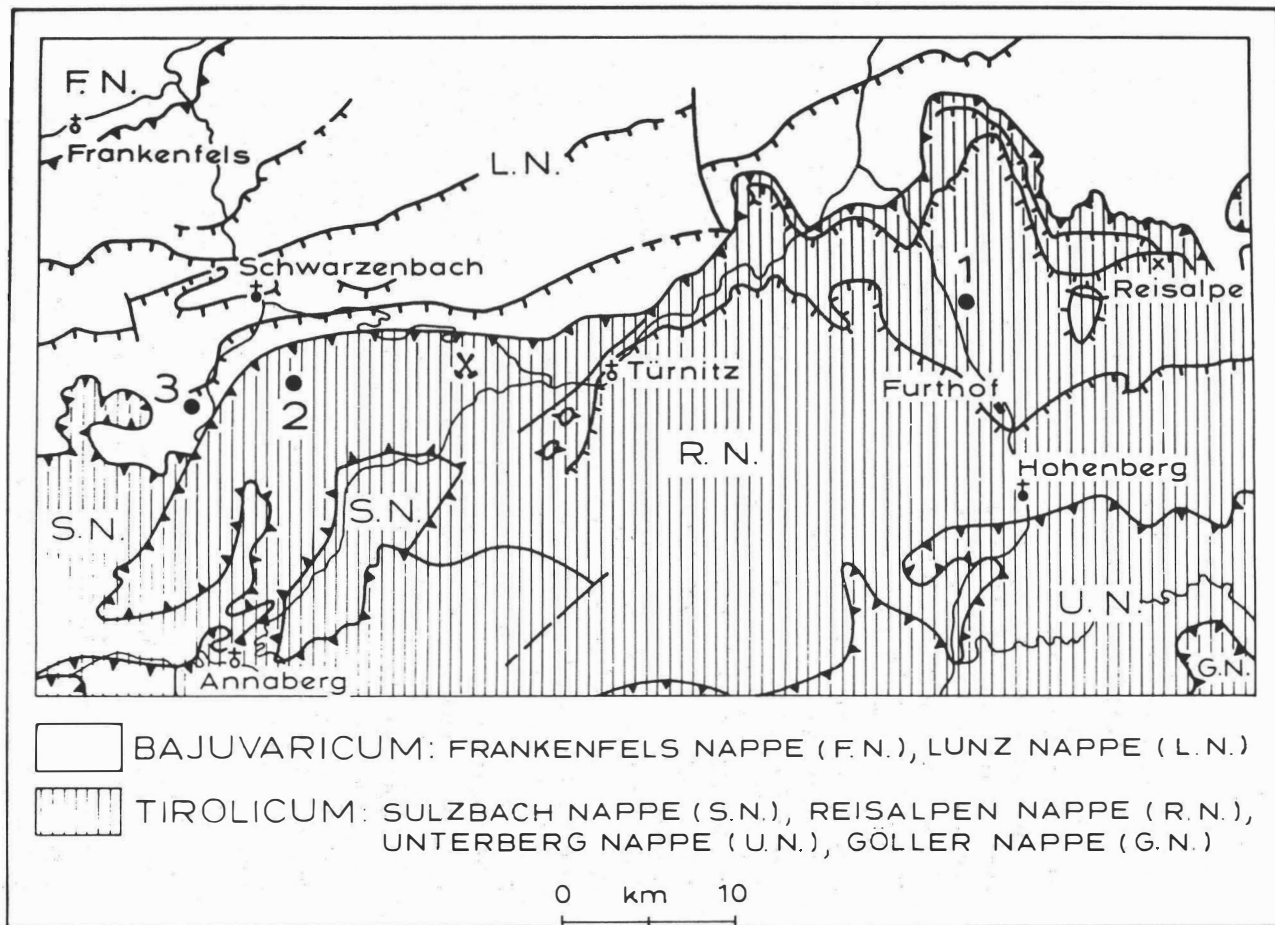
The site can be found at the topographical map ÖK 50: sheet 74, Hohenberg. Coming from the motorway Salzburg-Vienna you leave at the exit "St. Pölten Süd" and continue in southward direction. At the road-crossing near Freiland (S Lilienfeld) you take the direction to Hohenberg/St. Aegid. The outcrop is an old quarry on the left hand of this road, 3,5 km SE Freiland, at the western foot of the Reisalpen massif.

Remarks

The foundation of the two new species "*Gynoporella pauciforata*" and "*Gynoporella minutula*" by GÜMBEL (1872: 274, 275) was based on findings of two different localities (Reisalpe/Lower Austria and Pertisan/Tyrol). The first description of *Oligoporella prisca* by PIA (1912: 42-43) is based on localities within the mountain range west of Turnsitz (see auxiliary stop 8(2) and on outcrops in the eastern part of the Brebbalpe (=Reisalpe!). 1920 (p.32-33) PIA established the new species *Macroporella perforatissima* on the base of samples from the Reisalpe region and the Steiner Alps (Southern Alps, Slovenia). The exact locality of all this findings is not known, but the quarry SSE Kandlhof offers the best outcrops of the algae-



Fig.1: Tectonic sketch map of the Türritz region. Bajuvaricum (white): F.N. = Frankenfels Nappe, L.N. = Lunz Nappe, Tirolicum (hatched): S.N. = Sulzbach Nappe, U.N. = Unterberg Nappe. 1) Stop 8(1): Kandlhof quarry; 2) Stop 8(2): Schwarzenberg range; 3) Stop 8(3): Fuchsriegel.



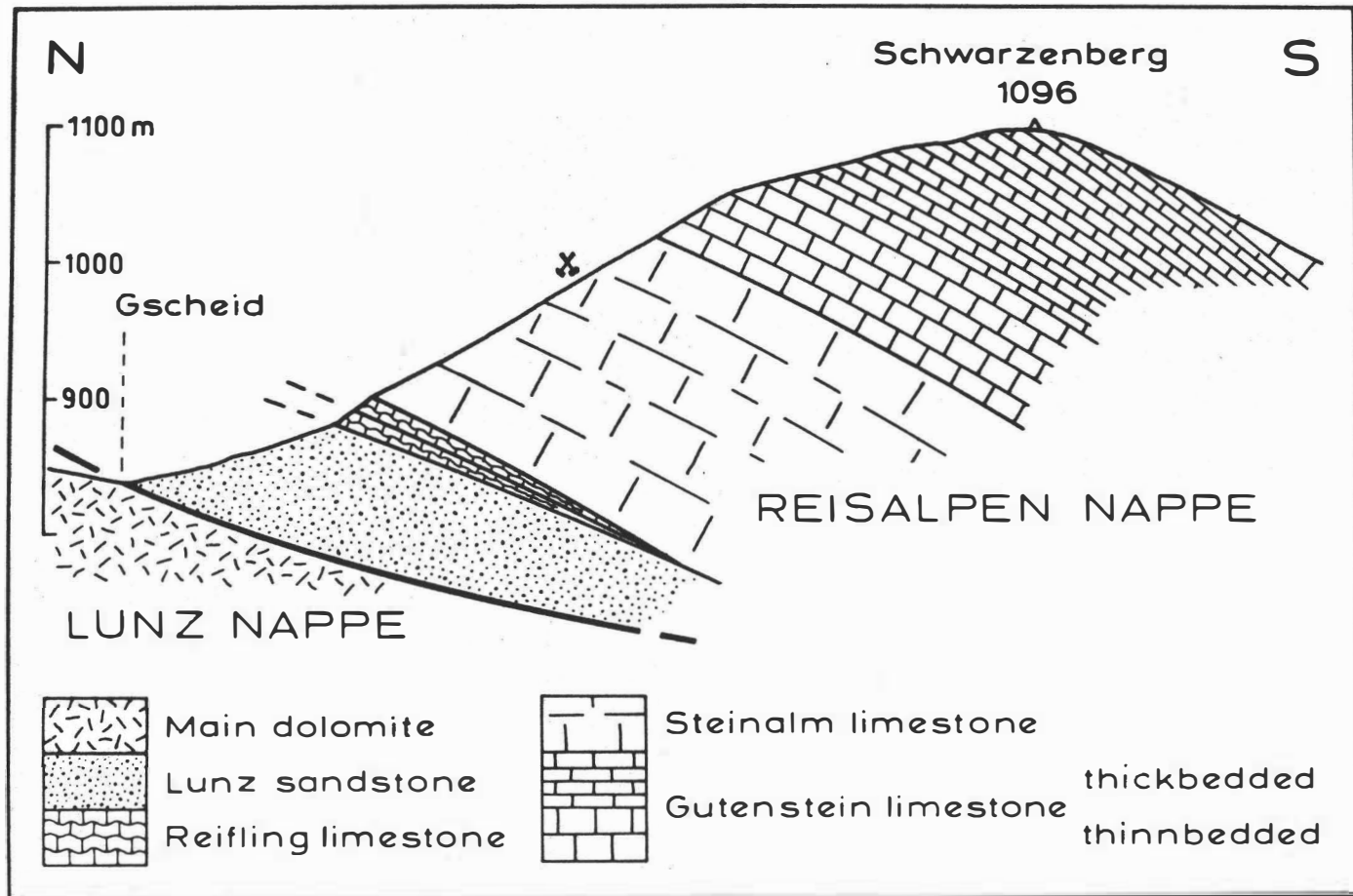


Fig.2: Section of the overturned sequence of the Schwarzenberg range. The thickness of the Reifling Formation is tectonically reduced. Excellent outcrops of the contact between the algaebearing Steinalm Limestone and the lowermost part of the Reifling Limestone are exposed in a cave (Trockenes Loch, 3.5 km S Schwarzenbach).



bearing layer within the Reissalmregion.

Stratum

"Gutenstein Limestone"

Age

Anisian (?Upper Pelsonian)

Facies

Black thickbedded bituminous limestones (mudstones and pelisparitic limestones) containing intercalations of packstones and wackestones with algae, gastropods and coated grains.

Flora

Oligoporella prisca PIA, *Physoporella pauciforata* (GÜMBEL), *Physoporella minutula* (GÜMBEL).

Environment

SMF type 10 (packstone-wackestone with coated and worn bioclasts): Slope below normal wave base.

Stop 8(2)

Locality

Wall-exposures between Schwarzenberg (1096 m) and Schlegelberg (= Sandkogel, 1057 m) W Tünnitz. Type locality of *Oligoporella prisca* PIA (1912), *Physoporella pauciforata* var. *pauciforata* PIA (1935) and *Diplopora praecursor* PIA (1920).

Topography

Topographical map ÖK 50, sheet 73, Tünnitz. Using the road from Tünnitz to the village Schwarzenbach WE follow the boarder line between the Lunz Nappe (right) and an completely overturned part of the Reissalpen Nappe (left). After five km the road passes a saddle (Gscheid, 841 m). From here we have an excellent view to the south to the old mining district of Schwarzenberg: The high wall ("Geiermäuer") is built up by Steinalm Limestones containing the above mentioned type localities and the old lead/zinc-mines of Schwarzenberg. The meadows below are built by sand-

stones of the Lunz Formation. On the summits of the range Gutenstein Limestone is exposed.

Remarks

The first description of *Oligoporella prisca* PIA (1912: 42-43) was only based on samples taken from the walls of the mentioned "Schlegelberg" (= Sandkogel) and samples of the Reissalm region. From the same site (Schlegelberg) PIA (1920: 72-73) also mentioned the new species *Diplopora praecursor*.

Stratum

Steinalm Limestone.

Age

Anisian (Pelsonian).

The Steinalm Limestone is overlain by Reifling Limestone containing a Pelsonian conodont fauna with *Gondolella lifurcata* (BUD. & STEF.).

Facies

Thickbedded to massive limestones (algal grainstones).

Flora

Diplopora annulata SCHAFFH., *Diplopora annulatissima* PIA, *Diplopora praecursor* PIA, *Macroporella alpina* PIA, *Oligoporella prisca* PIA, *Physoporella pauciforata* (GÜMBEL), *Teuthoporella peniculiformis* OTT.

Environment

SMF type 18 (foraminiferal or dasycladacean grainstones); lagoonal channels.

Stop 8(3)

Locality

Road out along a small carriage way 250 m S farmhouse Unt. Fuchsriegel. Type locality of *Macroporella alpina* PIA (1912: 34).

Topography

Topographical map ÖK 50, sheet 73, Tünnitz. Coming from the tiny village



Schwarzenbach we follow on a small road the Prelach valley to the south. After 3km a carriage way (Güterweg Fuchsriegel) branches off on the right side.

Stratum

Steinalm Limestone.

Age

Anisian (Pelsonian).

Facies

Thickbedded to massive limestones (algal grainstones). The section shows an overturned sequence (Fuchsriegel-Unit,

Lunz Nappe), starting with a tectonically reduced small flake of Steinalm Limestone. The contact to the Reifling Limestone is disturbed, the lowermost part of the Reifling Limestone is missing. The sequence continues with dark nodular limestones (Lower Ladinian) and pale grey limestones with thin green marly intercalations (lowermost Upper Ladinian).

Lithology and Environment

The same like stop 8(2).

References

Stops 8 (1-3)

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