

Geographic distribution: Remschnigg, ?Sausal region, ÖK50-BMN, map sheets 190 Leibnitz, 207 Arnfels.

Remarks: -

Complementary references: SCHÖNLAUB (1979).

Sandsteine / Sandstones

HANS P. SCHÖNLAUB

Validity: Invalid.

Type area: See remarks.

Type section: -

Reference section(s): -

Derivation of name: After the dominant lithology.

Synonyms: -

Lithology: Red quartz-sandstones and dark-grey silty shales.

Fossils: -

Origin, facies: Molasse-type sedimentation.

Chronostratigraphic age: -

Biostratigraphy: -

Thickness: Unknown.

Lithostratigraphically higher rank unit: -

Lithostratigraphic subdivision: -

Underlying unit(s): See remarks.

Overlying unit(s): -

Lateral unit(s): -

Geographic distribution: ÖK50-UTM, sheet 4110 Eibiswald, upper part of Lieschen creek (eastern margin of ÖK50-BMN, map sheet 206 Eibiswald; red sandstones also on ÖK50-BMN, map sheet 207 Arnfels) south of Leutschach.

Remarks: A sequence of red sandstones has been found in the Remschnigg area of southern Styria overlying the fossiliferous Silurian to Devonian sequence attributed by EBNER (1987) to the Murau and Stolzalpen Nappes of the Gurktal Thrust Sheet. The true relationship between the basement and the cover is unclear due to tectonic overprints. The clastic sequence starts with dark-grey silty shales and red quartz-sandstones which are correlated with the Werchzirm Formation of middle Carinthia.

Complementary references: -

Südburgenland / Southern Burgenland

The Paleozoic of southern Burgenland is represented by two units which are outcropping at the Hohensteinmaißberg (south of Kirchnfidisch), near Sulz, in the Punitz woods and at the Königsberg near Hannersdorf. Additionally, the sequence is documented by drill cores taken in the 1970s (EBNER, 1978b, 1988). Based on these cores "subsurface units" in Styria, which were correlated with the sections at Sulz and Hannersdorf by EBNER (1988: Fig. 4), were named "Blumauer Phyllit-Karbonat-Formation" and "Arnwiesener Gruppe" by FLÜGEL (1988).

In general, the unit is represented by small tectonic windows which were called "Schieferinseln" (HOFFMANN, 1877) within a tectonically displaced nappe almost completely covered by Neogene sediments. A total thickness is estimated with approx. 500 m (mainly phyllitic shale, limestone and dolomite). According to strong faulting, repetition of the sequence within the relatively thick shale intervals cannot be excluded. The composite section ranges from Silurian to Lower/Middle Devonian. Until now, Pridoli to Emsian is proven by microfossils (SCHÖNLAUB, 1994; SUTTNER, 2009a). Due to facies and fossil content, shallow marine, neritic conditions dominate the depositional environment.

Although the relationship and original distance of the Paleozoic deposits of southern Burgenland to that of adjacent nappes remain unclear, lithostratigraphic equivalents are suggested with neritic units of the Graz Paleozoic (FLÜGEL, 1988) and outcrops in Hungary (compare SCHÖNLAUB, 2000a: p. 35).

Dolomite und Schiefer des Hochsteinmaißberg und von Sulz / Dolomites and shales from the Hochsteinmaißberg and from Sulz

THOMAS J. SUTTNER

Validity: Informal unit; first observed by HOFFMANN (1877); detailed description is provided by POLLAK (1962) and SCHÖNLAUB (1984a, 1994).

Type area: ÖK50-UTM, map sheets 5220 Rechnitz, 5225 Fürstenfeld, 5226 Kohfidisch (ÖK50-BMN, map sheets 166 Fürstenfeld, 167 Güssing, 168 Eberau).

Type section: -

Reference section(s): Hohensteinmaißberg near Kirchnfidisch (Baron von Kottwitz quarry, N 47°09'01" / E 16°21'10"), Sulz (abandoned quarry, N 47°04'43" / E 16°15'57"), Punitz Woods (abandoned quarry, N 47°08'07" / E 16°21'32") compare SCHÖNLAUB (1984a, 1994); Waltersdorf 1 (drill core), Blumau 1 and 1a (drill cores), Fürstenfeld TH 1 (drill core), Litzelsdorf (drill core) compare EBNER (1988).

Derivation of name: After lithologic units outcropping at the Hohensteinmaißberg and near Sulz.

Synonyms: Phyllit-Kalkschiefer und Dolomit-Kalkkomplex (POLLAK, 1962); Hannersdorfer Komplex (SCHMIDT, 1983); Blumauer Phyllit-Karbonat-Formation (FLÜGEL, 1988) [this formation name was suggested by FLÜGEL (1988) based on drill cores Blumau 1 and 1a (EBNER, 1988)]; Blumau-Formation (SCHÖNLAUB, 1994 sensu FLÜGEL, 1988).

Lithology: Phyllitic shale, calcareous marl, laminated limestone, dolomitic limestone and dolostone, bedded limestone with thin interbeds of brownish silt.

Fossils: Brachiopods, conodonts, corals (rugose and tabulate), echinoderms, gastropods, ostracods, serpulids, sponge spicules.

Origin, facies: Marine, neritic unit.

Chronostratigraphic age: Hence the age of the dolomites from Sulz is documented by conodonts ranging from middle Silurian to Lower Devonian, a Sheinwoodian–Lochkovian age is suggested for this unit (SCHÖNLAUB, 1984a: p. 504).

Biostratigraphy: Additionally to the conodont assemblage from Sulz (SCHÖNLAUB, 1984a), the *eosteinhornensis*? and *woschmidti* conodont zones are documented from a short

interval of dolomite beds of the Baron von Kottwitz quarry (SUTTNER, 2009a).

Thickness: > 275 m.

Lithostratigraphically higher rank unit: Eisenberg Group (see remarks).

Lithostratigraphic subdivision: -

Underlying unit(s): Unclear, due to complex tectonics.

Overlying unit(s): Dolomite from Hannersdorf (conformable contact).

Lateral unit(s): The dolomites of this unit possibly represent equivalent units of the Graz Paleozoic and are compared with the Parmasegg Formation of the Rannach Nappe (FLÜGEL, 1988).

Geographic distribution: Southern Burgenland, between Kirchfidisch and Güssing.

Remarks: The fossiliferous Paleozoic rocks exposed around the Eisenberg in southern Burgenland were discovered by HOFFMANN (1877). By that time this area was known as "Eisenburger Comitatus". The name Eisenberg Group was introduced by BENDA (1929) who published a detailed geological map of this area. Further comprehensive work was done by POLLAK (1962), who discriminated two units within the lithological description of the Eisenberg Group: "Dolomit-Kalkkomplex" and "Phyllit-Kalkschiefer". These units were later described as Dolomites and shales from the Hochsteinmaißberg and from Sulz and Dolomite from Hannersdorf (SCHÖNLAUB, 1984a, 1994).

Complementary references: TOULA (1878), SCHMIDT (1954, 1956), SCHÖNLAUB (1979, 2000a), SCHMIDT et al. (1984), SCHÖNLAUB & HEINISCH (1994), SUTTNER & LUKENEDER (2004), GROSS et al. (2007), HUBMANN & SUTTNER (2007), LUKENEDER & SUTTNER (2007), SUTTNER (2007a, 2009b).

Dolomit von Hannersdorf / Dolomite from Hannersdorf THOMAS J. SUTTNER

Validity: Informal unit; first observed by HOFFMANN (1877); detailed description is provided by POLLAK (1962) and SCHÖNLAUB (1994, 2000a).

Type area: ÖK50-UTM, map sheets 5220 Rechnitz, 5225 Fürstenfeld, 5226 Kohfidisch (ÖK50-BMN, map sheets 166 Fürstenfeld, 167 Güssing, 168 Eberau).

Type section: -

Reference section(s): Königsberg near Hannersdorf (Weinhandl Quarry, N 47°13'19" / E 16°22'52"), Punitz Woods (abandoned quarry, N 47°08'07" / E 16°21'32") compare SCHÖNLAUB (1994); Arnwiesen 1 (drill core), Waltersdorf 1 (drill core), Blumau 1 and 1a (drill cores), Fürstenfeld 1 (drill core), Walkersdorf (drill core), Neuhaus 1 (drill core), Bachselten 1 (drill core), Mischendorf 1 (drill core),

SB 01 (drill core), ZFE 17 (drill core), ZFG 1 (drill core) compare EBNER (1988) and FLÜGEL (1988: p. 26).

Derivation of name: After the lithological units outcropping near the village of Hannersdorf.

Synonyms: Kalkglimmerschiefer und Kalkstein-Einlagerungen der Kohfidischer Schieferinsel am Kienisch-Berge bei Hannersdorf und Burg (HOFFMANN, 1877); Dolomit-Kalkkomplex (POLLAK, 1962); Hannersdorfer Komplex (SCHMIDT, 1983); Arnwiesen-Gruppe [partim] (FLÜGEL, 1988).

Lithology: Bedded and bright massive dolomite, shale, grey and black bedded limestone.

Fossils: Brachiopods, conodonts, corals (rugose and branched tabulate), echinoderms, fish teeth.

Origin, facies: Marine limestone, neritic unit.

Chronostratigraphic age: Lochkovian–Eifelian; an early Devonian age for the base of this unit was inferred by SCHÖNLAUB (1994: p. 369), who correlated the so called "Unterdevon-Dolomite von Hannersdorf im Südburgenland" with dark grey dolomites of the core "Waltersdorf 1", which are considered to be Lochkovian to Pragian. This age was suggested due to the absence of polygnathid conodonts in the small conodont assemblage obtained by EBNER (1978b). Within the conodont assemblage from the uppermost part of the sequence in Weinhandl Quarry near Hannersdorf at the Königsberg, Pa elements of *Polygnathus serotinus* were obtained, which point to a late Emsian age (compare SCHÖNLAUB, 1994: p. 369). However, the occurrence of this species is not constricted to the *serotinus* Zone, and ranges from the base of this zone into the lowermost Eifelian.

Biostratigraphy: *serotinus* Zone ? (compare conodont assemblage in SCHÖNLAUB, 1994).

Thickness: 250–300 m.

Lithostratigraphically higher rank unit: Eisenberg Group (see remarks at Dolomites and shales from the Hochsteinmaißberg and from Sulz).

Lithostratigraphic subdivision: -

Underlying unit(s): Dolomites and shales from the Hochsteinmaißberg and from Sulz (conformable contact).

Overlying unit(s): -

Lateral unit(s): The unit is correlated with the Flösserkogel Formation (Rannach Nappe, Graz Paleozoic) and with the Bük Dolomitformation (Hungary) by FLÜGEL (1988: p. 26).

Geographic distribution: Southern Burgenland, area around Hannersdorf.

Remarks: -

Complementary references: TOULA (1878), BENDA (1929), SCHMIDT (1954, 1956), SCHMIDT et al. (1984), SCHÖNLAUB (1979, 1984a), SCHÖNLAUB & HEINISCH (1994), POSCH-TRÖZMÜLLER (2002), FLEISCHHANDLER (2006), GROSS et al. (2007).

Karnische Alpen / Carnic Alps

Pre-Variscan Sequence

The pre-Variscan units of the Carnic Alps represent peri-Gondwanan deposits of the Rheic Ocean which was closed during the Variscan orogeny. The sequence starts with phyllitic slates and volcanites at the base. Marine limestones (neritic to pelagic) and pelagic offshore clas-

tic deposits start during the Late Ordovician and persist (including minor and major stratigraphical gaps) until the early Carboniferous. Pre-Variscan sediments of the Carnic Alps (including Austrian and Italian deposits) are restricted to an area of about 110 km (W–E extension) x 15 km (N–S

Austrian Stratigraphic Chart 2004 - Paleozoic

(sedimentary successions)

Austrian Stratigraphic Commission



ERA	SYSTEM / PERIOD / SERIES / EPOCH	STAGE / AGE	DURATION Ma	Global Classification					
				ERATHM / ERA	SYSTEM / PERIOD / SERIES / EPOCH				
PALEOZOIC	PERMIAN	CHANGHSINGIAN / Dorashanian	251	PERMIAN	MID PERMIAN / GUADALUPIAN				
		WUCHIAPINGIAN / Dzhulfian	255						
		CAPITANIAN	260						
		WORDIAN	265						
		ROADIAN	270						
		PERMIAN	LOWER PERMIAN / CISURALIAN			KUNGURIAN	275		
						ARTINSKIAN	280		
						SAKMARIAN	285		
						ASSELIAN	290		
		PERMIAN	UPPER PERMIAN / CARBONIFEROUS			GZHELIAN	295	PERMIAN	LOWER PERMIAN / CISURALIAN
KASIMOVIAN	300								
MOSKOVIAN	305								
BASHKIRIAN	310								
PERMIAN	UPPER PERMIAN / CARBONIFEROUS			SERPUKHOVIAN	315				
				VISEAN	320				
					325				
PERMIAN	LOWER PERMIAN / MISSISSIPPIAN			TOURNAISIAN	330	PERMIAN	LOWER PERMIAN / MISSISSIPPIAN		
				335					
				340					
		345							
		350							
		355							
		359.2							
		365							
		370							
		375							
PERMIAN	UPPER DEVONIAN	FAMENNIAN	380	PERMIAN	UPPER DEVONIAN				
		FRASNIAN	385						
		GIVETIAN	390						
		EIFELIAN	395						
		DEVONIAN	LOWER DEVONIAN			EMSIA	400		
						405			
		PRAGIAN	410						
		LOCHKOVIAN	415						
		PERMIAN	LOWER DEVONIAN			LUDFORDIAN	420	PERMIAN	LOWER DEVONIAN
						GORSTIAN	425		
HOMERIAN	430								
SHEINWOOD	435								
TELYCHIAN	440								
AERONIAN	443.7								
RHUDDANIAN	445								
HIRNANTIAN	447								
PERMIAN	UPPER ORDOVICIAN			450	PERMIAN	UPPER ORDOVICIAN			
				455					
		460							
		465							
		470							
		475							
		480							
		485							
		488.3							
		490							
PERMIAN	UPPER CAMBRIAN	495	PERMIAN	UPPER CAMBRIAN					
		500							
		505							
		510							
		515							
		520							
		525							
		530							
		535							
		540							
PERMIAN	LOWER CAMBRIAN	542	PERMIAN	LOWER CAMBRIAN					
		545							
		550							
		555							
		560							
		565							
		570							
		575							
		580							
		585							



- Legend**
- pelagic, offshore, siliciclastic
 - pelagic, nearshore, calcareous
 - shallow marin, neritic
 - terrestrial-continental, coarse clastic
 - terrestrial-continental, fine clastic
 - evaporite (chloride, sulphate)
 - rhyolite, dacite
 - (basaltic) andesite, trachyandesite
 - basalt
 - phyllite
 - mixed-facies (in corresponding colors)
 - coal (may include several seams)
 - ? position/age doubtful/controversial
 - | equal units
 - \ older unit left \ younger unit right
 - hiatus
 - unconformity
 - GSSP
 - Fm. Formation
 - Ls. Limestone

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Cutout and English adaptation of the "Die Stratigraphische Tabelle von Österreich 2004": Geological Survey of Austria

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