

Lateral unit(s): Hohe Warte Limestone, Seewarte Limestone, Findenig Limestone.

Geographic distribution: Carnic Alps.

Remarks: -

Complementary references: SCHÖNLAUB & HISTON (2000), HUBMANN et al. (2003).

Findenig-Kalk / Findenig Limestone

THOMAS J. SUTTNER, ERIKA KIDO

Validity: Invalid; limestone deposits of Mount Findenig are well studied by PÖLSLER (1969a); facies analysis of Findenig Limestone is provided from Oberbuchach and Findenigkofel by SCHÖNLAUB (1985b: p. 357) and SCHÖNLAUB et al. (2004: p. 24); a summary of the unit is given by KREUTZER (1992b: p. 28).

Type area: ÖK50-UTM, map sheets 3109 Oberdrauburg, 3110 Kötschach-Mauthen, 3111 Spittal an der Drau, 3116 Sonnenalpe Naßfeld, 3117 Nötsch im Gailtal (ÖK50-BMN, map sheets 197 Kötschach, 198 Weißbriach, 199 Herma-gor).

Type section: -

Reference section(s): Mount Findenig (N 46°35'42" / E 13°06'14"), Rauchkofel Boden section, Valentintörl section, Oberbuchach II, Hoher Trieb, Seekopf, Monte Zermula (see VAI, 1980: p. 80; SCHÖNLAUB, 1985b: p. 357; SCHÖNLAUB et al., 2004: p. 24, 28).

Derivation of name: After Mount Findenig.

Synonyms: Grauer und rother Kramenzelkalk (FRECH, 1894b: p. 227); fleischrote oder lichtgraue, plattige Netzkalke (GEYER, 1903); graue und rote Netzkalke (SPITZ, 1909); Devonischer Netzkalk mit Goniatiten (GAERTNER, 1931); Netzkalke mit Goniatiten (HABERFELNER & HERITSCH, 1932b); 'Roter Flaser- und Knollenkalk' (BANDEL, 1974: p. 96); reddish nodular limestone (SCHÖNLAUB, 1980b).

Lithology: Red flaser and nodular limestone (HUBMANN et al., 2003: p. 34).

Fossils: Cephalopods, conodonts, foraminifers, ostracods, tentaculites (dacryoconarids; SCHÖNLAUB et al., 2004: p. 53).

Origin, facies: Marine limestone, pelagic unit (Pelagic Carbonate Facies).

Chronostratigraphic age: Pragian–Emsian.

Biostratigraphy: *serratus* and *kitabicus* conodont zones (PÖLSLER, 1969b).

Thickness: 40–60 m.

Lithostratigraphically higher rank unit: -

Lithostratigraphic subdivision: -

Underlying unit(s): Boden Limestone (conformable contact), Nöbling Formation (conformable contact), Middle and Upper Bischofalm Shale (conformable contact).

Overlying unit(s): Hohe Trieb Formation (conformable contact), Valentin Limestone (conformable contact).

Lateral unit(s): Kellerwand Limestone, Vinz Limestone, Zollner Formation.

Geographic distribution: Carnic Alps.

Remarks: -

Complementary references: PÖLSLER (1969b), BANDEL & BECKER (1975), RANTITSCH (1992a), FERRETTI et al. (1999), HISTON et al. (1999), SCHÖNLAUB & HISTON (2000).

Zollner-Formation / Zollner Formation

THOMAS J. SUTTNER, ERIKA KIDO

Validity: Valid (SCHÖNLAUB, 1985a: p. 44); detailed facies description by SCHÖNLAUB & HISTON (2000) and SCHÖNLAUB et al. (2004).

Type area: ÖK50-UTM, map sheets 3109 Oberdrauburg, 3110 Kötschach-Mauthen, 3111 Spittal an der Drau, 3116 Sonnenalpe Naßfeld, 3117 Nötsch im Gailtal (ÖK50-BMN, map sheets 197 Kötschach, 198 Weißbriach, 199 Herma-gor).

Type section: Section near Lake Zollner (N 46°36'18" / E 13°04'11").

Reference section(s): Gundesheim Alm road (Oberbuchach section), Findenig, Hoher Trieb, southern side of Hohe Warte, Dellach Alm, Kronhof- and Nöblinggraben (SCHÖNLAUB, 1969a).

Derivation of name: After Lake Zollner (SCHÖNLAUB, 1985a: p. 78).

Synonyms: -

Lithology: Greyish green lydites and siliceous shales.

Fossils: Conodonts, radiolarians (SCHÖNLAUB, 1985a: p. 44).

Origin, facies: Marine, pelagic unit (Distal Siliciclastic Facies).

Chronostratigraphic age: Lochkovian–Tournaisian (regarding to the age constraint, the reader is referred to SCHÖNLAUB & HISTON, 2000: p. 23 and SCHÖNLAUB et al., 2004).

Biostratigraphy: -

Thickness: > 100 m.

Lithostratigraphically higher rank unit: -

Lithostratigraphic subdivision: -

Underlying unit(s): Middle and Upper Bischofalm Shale (conformable contact).

Overlying unit(s): Hochwipfel Formation (unconformable contact).

Lateral unit(s): Findenig Limestone, Valentin Limestone, Pal Limestone, Kronhof Limestone.

Geographic distribution: Carnic Alps.

Remarks: -

Complementary references: SCHÖNLAUB (1969a, 1991), HERZOG (1988), VAI (1998), SCHÖNLAUB & HISTON (1999), MADER & NEUBAUER (2004), VENTURINI (2006).

Seewarte-Kalk / Seewarte Limestone

THOMAS J. SUTTNER, ERIKA KIDO

Validity: Invalid; first mentioned by STACHE (1884); the diverse gastropod fauna of this unit was first observed in the rubble of the Seewarte by SPITZ (1907); detailed description is given by KREUTZER (1990: p. 295); later included within the summary of the Variscan carbonate sequences in the Carnic Alps (KREUTZER, 1992b: p. 28).

Type area: ÖK50-UTM, map sheets 3108 Sillian, 3109 Oberdrauburg, 3110 Kötschach-Mauthen, 3116 Sonnenalpe Naßfeld (ÖK50-BMN, map sheets 196 Obertilliach, 197 Kötschach).

Type section: -

Reference section(s): Section near Rifugio Lambertenghi e Romanin at the base of Seewarte – Cima Lastrons del Lago (KREUTZER, 1992a: p. 270), N 46°36'30" / E 12°52'14".

Derivation of name: After Mount Seewarte.

Synonyms: Riffkalk-Facies der Stockwerke H-G-H [partim] (STACHE, 1884: p. 339); schwarzer Gastropodenkalk (GAERTNER, 1931: p. 144); schwarze Kalke mit ihrem reichlichen Vorkommen von Hercynellen (GAERTNER, 1931: p. 144); Hercynellenkalk-Niveau (KREUTZER, 1990).

Lithology: Black bituminous limestone.

Fossils: Calcareous algae, bivalves, corals, crinoids, gastropods, ostracods (JHAVERI, 1969; KREUTZER, 1992b: p. 28).

Origin, facies: Marine limestone, neritic unit within the Southern Shallow-water Facies (SCHÖNLAUB et al., 2004: p. 19).

Chronostratigraphic age: Lower Emsian (ERBEN et al., 1962; KREUTZER, 1990: p. 295; SCHÖNLAUB et al., 2004: p. 12).

Biostratigraphy: -

Thickness: 40 m.

Lithostratigraphically higher rank unit: -

Lithostratigraphic subdivision: -

Underlying unit(s): Hohe Warte Limestone (conformable contact).

Overlying unit(s): Lambertenghi Limestone (conformable contact), Eiskar Limestone (conformable contact).

Lateral unit(s): Gamskofel Limestone, Kellerwand Limestone, Vinz Limestone.

Geographic distribution: Carnic Alps.

Remarks: -

Complementary references: PÖLSLER (1967), SCHÖNLAUB (1971–1973, 1984b, 1985a, 1991), KREUTZER et al. (1997, 2000), SCHÖNLAUB & KREUTZER (1997), VAI (1998), SCHÖNLAUB & HISTON (2000), HUBMANN et al. (2003), CARULLI (2006).

Vinz-Kalk / Vinz Limestone

THOMAS J. SUTTNER, ERIKA KIDO

Validity: Invalid; documented by SCHÖNLAUB (1969a); mapped by KREUTZER & SCHÖNLAUB (1984); name of the unit was first used by KREUTZER (1992a: p. 271).

Type area: ÖK50-UTM, map sheets 3109 Oberdrauburg, 3110 Kötschach-Mauthen, 3116 Sonnenalpe Naßfeld (ÖK50-BMN, map sheet 197 Kötschach).

Type section: -

Reference section(s): Eiskar cavern (N 46°36'53" / E 12°54'36") southwest of Eiskar Hut and northwest of Eiskar glacier, upper part of Cellon avalanche gully (KREUTZER, 1992a; SCHÖNLAUB et al., 2004).

Derivation of name: After the Vinz peak at the lower Kellerwand (KREUTZER, 1992a: p. 271).

Synonyms: Dunkler Plattenkalk (SCHÖNLAUB, 1969a: p. 288); Dunkelgrauer, geflasierter Plattenkalk im Wechsel

mit Schuttbrekzien (KREUTZER & SCHÖNLAUB, 1984); Plattenkalke der Unteren Kellerwand [partim] (KREUTZER, 1990: p. 286); calcari stratificati giallastri [partim] (SPALLETTA et al., 1982); yellow bedded limestone [partim] (SPALLETTA & VENTURINI, 1989).

Lithology: Dark grey platy limestone with debris layers (KREUTZER, 1992b: p. 29).

Fossils: Bivalves, cephalopods, corals, conodonts, ecinoderms, foraminifers, ostracods, tentaculites.

Origin, facies: Marine limestone, following KREUTZER (1992a) the depositional environment corresponds with the Transitional Facies.

Chronostratigraphic age: Emsian (KREUTZER, 1990).

Biostratigraphy: -

Thickness: 120 m.

Lithostratigraphically higher rank unit: -

Lithostratigraphic subdivision: -

Underlying unit(s): Kellerwand Limestone (conformable contact).

Overlying unit(s): Cellon Limestone (conformable contact), Freikofel Limestone (conformable contact).

Lateral unit(s): Seewarte Limestone, Eiskar Limestone, Findenig Limestone.

Geographic distribution: Carnic Alps.

Remarks: -

Complementary references: KREUTZER (1990), SCHÖNLAUB & HISTON (2000), HUBMANN et al. (2003).

Lambertenghi-Kalk / Lambertenghi Limestone

THOMAS J. SUTTNER, ERIKA KIDO

Validity: Invalid; known since STACHE (1884); facies described by POHLER (1982), KREUTZER (1990, 1992a) and SCHÖNLAUB et al. (2004); the name of this unit was first used by KREUTZER (1992a: p. 270, 1992b: p. 29) and SCHÖNLAUB (1992), as Lambertenghi-Kalk and Lambertenghi Limestone, respectively.

Type area: ÖK50-UTM, map sheets 3109 Oberdrauburg, 3110 Kötschach-Mauthen, 3116 Sonnenalpe Naßfeld (ÖK50-BMN, map sheet 197 Kötschach).

Type section: -

Reference section(s): Area of Rifugio Lambertenghi e Romanin, South of Lake Wolayer (western walls of Mount Seewarte and opposite side, N 46°36'22" / E 12°52'15"), section along Seekopf (SCHÖNLAUB, 1971–1973; KREUTZER, 1992a: p. 270).

Derivation of name: After Rifugio Lambertenghi e Romanin.

Synonyms: Riffkalk-Facies der Stockwerke H-G-H [partim] (STACHE, 1884: p. 339); Riffkalk mit *Karpinskya consuelo* (GAERTNER, 1931); Schichten mit *K. consuelo* (PÖLSLER, 1967); Gebankter Laminitkalk mit *Karpinskya consuelo* (SCHÖNLAUB, 1971–1973); Consuelo Lst. (SCHÖNLAUB, 1980: Fig. 3); Consuelo-Laminit-Kalk (SCHÖNLAUB, 1985a: Fig. 10); Gebankter Laminitkalk (SCHÖNLAUB, 1985a: p. 42); gebankte Laminitkalke (KREUTZER, 1990); Laminit-Kalk (SCHÖNLAUB, 1991: p. 105); Laminierte geschichtete Kalke und Dolomite (SCHÖNLAUB, 1991: p. 105); Laminierte Kalke

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 / Dorashamian	251	PERMIAN	MID PERMIAN / GUADALUPIAN / LOPINGIAN				
		WUCHIAPINGIAN / Duhullian	255						
		CAPITANIAN	260						
		WORDIAN	265						
		ROADIAN	270						
		PERMIAN	LOWER PERMIAN / CISURALIAN			KUNGURIAN	275		
						ARTINSKIAN	280		
						SAKMARIAN	285		
						ASSELIAN	290		
		PERMIAN	TRIAS			GZHELIAN	295	TRIAS	U. CARBONIFEROUS / PENNSYLVANIAN
KASIMOVIAN	300								
MOSKOVIAN	305								
BASHKIRIAN	310								
TRIAS	LOWER CARBONIFEROUS / MISSISSIPPIAN			SERPUKHOVIAN	315				
				VISEAN	320				
				TOURNAISIAN	325				
PERMIAN	DEVONIAN			FAMENNIAN	330	DEVONIAN	UPPER DEVONIAN		
				FRASNIAN	335				
				GIVETIAN	340				
		EIFELIAN	345						
		DEVONIAN	LOWER DEVONIAN	EMSIAN	350				
				LOCHKOVIAN	355				
		PERMIAN	DEVONIAN	LUDFORDIAN / GORSTIAN	359.2			DEVONIAN	MIDDLE DEVONIAN
				HOMERIAN / SHEINWOOD	365				
				TELYCHIAN	370				
				AERONIAN	375				
RHUDDANIAN	380								
PERMIAN	DEVONIAN			HIRNANTIAN	385				
				LLANDOVERY	390				
PERMIAN	DEVONIAN			WEN-LOCK / LOW	395	DEVONIAN	LOWER DEVONIAN		
				PRAGIAN	400				
				LOCHKOVIAN	405				
		Zlichovian	410						
		PERMIAN	DEVONIAN	LUDFORDIAN / GORSTIAN	416				
				HOMERIAN / SHEINWOOD	420				
		PERMIAN	DEVONIAN	WEN-LOCK / LOW	425			DEVONIAN	UPPER ORDOVICIAN
				TELYCHIAN	430				
				AERONIAN	435				
				RHUDDANIAN	440				
PERMIAN	DEVONIAN			HIRNANTIAN	443.7				
				LLANDOVERY	445				
PERMIAN	DEVONIAN			WEN-LOCK / LOW	450	DEVONIAN	MIDDLE ORDOVICIAN		
				PRAGIAN	455				
				LOCHKOVIAN	460				
				Zlichovian	465				
		PERMIAN	DEVONIAN	LUDFORDIAN / GORSTIAN	470				
				HOMERIAN / SHEINWOOD	475				
		PERMIAN	DEVONIAN	WEN-LOCK / LOW	480			DEVONIAN	LOWER ORDOVICIAN
				PRAGIAN	485				
				LOCHKOVIAN	490				
				Zlichovian	495				
PERMIAN	DEVONIAN			LUDFORDIAN / GORSTIAN	500				
				HOMERIAN / SHEINWOOD	505				
PERMIAN	DEVONIAN			WEN-LOCK / LOW	510	DEVONIAN	UPPER CAMBRIAN		
				PRAGIAN	515				
				LOCHKOVIAN	520				
				Zlichovian	525				
		PERMIAN	DEVONIAN	LUDFORDIAN / GORSTIAN	530				
				HOMERIAN / SHEINWOOD	535				
		PERMIAN	DEVONIAN	WEN-LOCK / LOW	540			DEVONIAN	MIDDLE CAMBRIAN
				PRAGIAN	545				
				LOCHKOVIAN	550				
				Zlichovian	555				
PERMIAN	DEVONIAN			LUDFORDIAN / GORSTIAN	560				
				HOMERIAN / SHEINWOOD	565				
PERMIAN	DEVONIAN			WEN-LOCK / LOW	570	DEVONIAN	LOWER CAMBRIAN		
				PRAGIAN	575				
				LOCHKOVIAN	580				
				Zlichovian	585				
		PERMIAN	DEVONIAN	LUDFORDIAN / GORSTIAN	590				
				HOMERIAN / SHEINWOOD	595				



- 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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