

**Reference section(s):** Section Oberbuchach 1 along the Gundersheimer Almroad, Bischofalmgraben, Collendial (SCHÖNLAUB, 1981, 1985a: p. 40, 72).

**Derivation of name:** After the locality Bischofalm in the Carnic Alps (Austria).

**Synonyms:** Basal quartzite (JAEGER & SCHÖNLAUB, 1980: p. 404); Quarzite (JAEGER & SCHÖNLAUB, 1980: Fig. 1); dünne quarzitische Lagen (SCHÖNLAUB, 1985a: p. 40).

**Lithology:** Dark grey to grey, thin quartzite beds, dolomitic sandstone (JAEGER & SCHÖNLAUB, 1980: p. 411; SCHÖNLAUB, 1981).

**Fossils:** -

**Origin, facies:** Marine siliciclastics, pelagic unit.

**Chronostratigraphic age:** Based on the above deposited graptolite-yielding shales (Lower Bischofalm Shale) which are early Silurian in age (see SCHÖNLAUB, 1979: Fig. 17 and updated version in SCHÖNLAUB, 1985a: Fig. 13), a late Ordovician to early Silurian age is proposed for this unit by JAEGER & SCHÖNLAUB (1980) and SCHÖNLAUB (1981).

**Biostratigraphy:** -

**Thickness:** Approx. 80 m.

**Lithostratigraphically higher rank unit:** Bischofalm Nappe (informal).

**Lithostratigraphic subdivision:** -

**Underlying unit(s):** Val Visdende Formation (conformable contact?).

**Overlying unit(s):** Lower Bischofalm Shale (conformable contact).

**Lateral unit(s):** Uggwa Shale, Uggwa Limestone, Plöcken Formation.

**Geographic distribution:** Carnic Alps.

**Remarks:** -

**Complementary references:** SCHÖNLAUB (1985a, 1991), SCHÖNLAUB & HEINISCH (1994), SCHÖNLAUB & HISTON (2000), HUBMANN et al. (2003).

### Wolayer-Kalk / Wolayer Limestone

THOMAS J. SUTTNER, HANS P. SCHÖNLAUB,  
ANNALISA FERRETTI

**Validity:** Invalid; first observed by STACHE (1884: p. 337); better described by GAERTNER (1931), who already used the name Wolayer Kalk for this unit; later included within the summary of the Variscan carbonate sequences in the Carnic Alps (KREUTZER, 1992b).

**Type area:** ÖK50-UTM, map sheets 3109 Oberdrauburg, 3110 Kötschach-Mauthen, 3116 Sonnenalpe Naßfeld (ÖK50-BMN, map sheets 197 Kötschach, 198 Weißbriach).

**Type section:** Rauchkofelboden (GAERTNER, 1931: p. 136–137); N 46°36'54" / E 12°52'30"; altitude 2,153 m.

**Reference section(s):** Seekopfsockel (N 46°36'33" / E 12°51'58"), Valentintörl (SCHÖNLAUB, 1980b).

**Derivation of name:** After the Wolayer region in the central Carnic Alps (Austria).

**Synonyms:** Stufe der weissen und grauen Kalke (STACHE, 1884); Graue, massige, versteinungsleere Kalke auf der Höhe des Thörl (FRECH, 1887: p. 685); Graue massige Kalke (FRECH, 1894b: Fig. 82); massige Bank von grauem oder rötlichem, aber hell anwitterndem Kalk [partim] (GEYER,

1903); Helle, massige Bank (SPITZ, 1909); roter und weißer, hell verwitternder Krinoidenkalk [partim] (GAERTNER, 1931); Krinoidenkalk ("helle Bank") [partim] (HABERFELNER & HERITSCH, 1932b); Biocalculititi mandorlate ("Tonflaserkalk") (MANARA & VAI, 1970); Grey massive crinoid limestone (SCHÖNLAUB, 1971a: p. 369); Ashgill-Crinoiden-Calcarenit der "Bewegtwasser-Fazies" (SCHÖNLAUB, 1971a: Fig. 2); Calcare a crinoidi, bioruditic lst. ("Cystoideenkalk") (SPALLETTA et al., 1982: p. 282–283); Cystoideen-Kalk (DULLO, 1992); Cystoidean Limestone (DULLO, 1992).

**Lithology:** White massive, sparry crinoidal debris limestone (KREUTZER, 1992b).

**Fossils:** Bryozoans, crinoids, conodonts, cystoids, ostracods (rare), trilobites.

**Origin, facies:** Marine limestone, neritic unit consisting of parautochthonous bioclasts derived from crinozoan mounds (DULLO, 1992).

**Chronostratigraphic age:** Upper Ordovician (Katian-Hirnantian).

**Biostratigraphy:** *ordovicicus* conodont zone (FERRETTI & SCHÖNLAUB, 2001).

**Thickness:** 10–17 m.

**Lithostratigraphically higher rank unit:** Himmelberg Facies (informal).

**Lithostratigraphic subdivision:** -

**Underlying unit(s):** Himmelberg Sandstone (conformable contact). Following HUBICH & LOESCHKE (1993: Fig. 3; p. 355) and SCHÖNLAUB & FLAJS (1993: p. 236 and 240–241), the Comelico Porphyry or the Fleons Greywacke, respectively, are not directly overlain by the Wolayer Limestone as shown in the ASC 2004.

**Overlying unit(s):** Plöcken Formation (unconformable contact); Kok Formation (unconformable contact).

**Lateral unit(s):** Uggwa Limestone.

**Geographic distribution:** Carnic Alps.

**Remarks:** -

**Complementary references:** HABERFELNER & HERITSCH (1932b), HERITSCH (1932), SCHÖNLAUB (1979, 1991, 1992, 2000b), SCHÖNLAUB et al. (1997, 2004), VAI (1998), SCHÖNLAUB & HISTON (2000).

### Uggwa-Kalk / Uggwa Limestone

THOMAS J. SUTTNER, HANS P. SCHÖNLAUB,  
ANNALISA FERRETTI

**Validity:** Invalid; already mentioned by STACHE (1884) as Knollenkalk; first described by GAERTNER (1931); further observed by VAI (1971) and SCHÖNLAUB (1971a, 1979, 1985a); later included within the summary of the Variscan carbonate sequences in the Carnic Alps (KREUTZER, 1992b).

**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, 199 Hermagor).

**Type section:** Cellon avalanche gully (see remarks), Beds 1–4+ after WALLISER (1964); N 46°36'32" / E 13°29'03"; altitude 1,500 m.

**Reference section(s):** Uggwa creek (VAI, 1971), N 46°33'05" / E 13°29'13"; Valentintörl, Feistrizgraben, Nölblinggraben (SCHÖNLAUB, 1985a: p. 36; DULLO, 1992).

# 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				
		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 PENNSYLVANIAN			GZHELIAN	295	PERMIAN	LOWER PERMIAN / CISURALIAN
KASIMOVIAN	300								
MOSKOVIAN	305								
BASHKIRIAN	310								
PERMIAN	UPPER PERMIAN / CARBONIFEROUS PENNSYLVANIAN			SERPUKHOVIAN	315				
				VISEAN	320				
				TOURNAISIAN	325				
PERMIAN	UPPER PERMIAN / CARBONIFEROUS PENNSYLVANIAN			FAMENNIAN	330	PERMIAN	UPPER PERMIAN / CARBONIFEROUS PENNSYLVANIAN		
				FRASNIAN	335				
				GIVETIAN	340				
		EIFELIAN	345						
		PERMIAN	UPPER PERMIAN / CARBONIFEROUS PENNSYLVANIAN	EMSIAN	350				
				LOCHKOVIAN	355				
		PERMIAN	UPPER PERMIAN / CARBONIFEROUS PENNSYLVANIAN	LUDFORDIAN / GORSTIAN	359.2			PERMIAN	UPPER PERMIAN / CARBONIFEROUS PENNSYLVANIAN
				HOMERIAN / SHEINWOOD	365				
				TELYCHIAN	370				
				AERONIAN	375				
RHUDDANIAN	380								
PERMIAN	UPPER PERMIAN / CARBONIFEROUS PENNSYLVANIAN			HIRNANTIAN	385				
				ORDOVICIAN	390				
PERMIAN	UPPER PERMIAN / CARBONIFEROUS PENNSYLVANIAN			TREMACIAN	395	PERMIAN	UPPER PERMIAN / CARBONIFEROUS PENNSYLVANIAN		
				DARRIWILIAN	400				
				PAIBIAN	405				
		PERMIAN	UPPER PERMIAN / CARBONIFEROUS PENNSYLVANIAN	PAIBIAN	410				
				PAIBIAN	415				
		PERMIAN	UPPER PERMIAN / CARBONIFEROUS PENNSYLVANIAN	PAIBIAN	420			PERMIAN	UPPER PERMIAN / CARBONIFEROUS PENNSYLVANIAN
				PAIBIAN	425				
				PAIBIAN	430				
				PAIBIAN	435				
				PAIBIAN	440				
PAIBIAN	443.7								
PAIBIAN	445								
PAIBIAN	450								
PAIBIAN	455								
PAIBIAN	460								
PERMIAN	UPPER PERMIAN / CARBONIFEROUS PENNSYLVANIAN	PAIBIAN	465	PERMIAN	UPPER PERMIAN / CARBONIFEROUS PENNSYLVANIAN				
		PAIBIAN	470						
		PAIBIAN	475						
		PAIBIAN	480						
		PAIBIAN	485						
		PAIBIAN	488.3						
		PAIBIAN	490						
		PAIBIAN	495						
		PAIBIAN	500						
		PAIBIAN	505						
PERMIAN	UPPER PERMIAN / CARBONIFEROUS PENNSYLVANIAN	PAIBIAN	510	PERMIAN	UPPER PERMIAN / CARBONIFEROUS PENNSYLVANIAN				
		PAIBIAN	515						
		PAIBIAN	520						
		PAIBIAN	525						
		PAIBIAN	530						
		PAIBIAN	535						
		PAIBIAN	540						
		PAIBIAN	542						



### 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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