

Derivation of name: After facies characters.

Synonyms: Gebankte Kalke (KUPSCH et al., 1971); schillreiche Kalke (LOESCHKE & ROLSER, 1971: p. 153); Kalk (MOSHAMMER, 1989: Fig. 3).

Lithology: Grey bioclastic flaser limestone.

Fossils: Brachiopods, bryozoans, crinoids, conodonts, ostracods, trilobites.

Origin, facies: Marine limestone, neritic unit.

Chronostratigraphic age: Upper Ordovician (Katian).

Biostratigraphy: *ordovicicus* conodont zone (MOSHAMMER, 1989: p. 625).

Thickness: Approx. 8 m.

Lithostratigraphically higher rank unit: -

Lithostratigraphic subdivision: -

Underlying unit(s): -

Overlying unit(s): "Untere Schichten" (unconformable contact?).

Lateral unit(s): Equivalent units are seen within the Ordovician limestones of the Carnic Alps (MOSHAMMER, 1989).

Geographic distribution: Karavanke Mountains (Eisenkappel and Seeberg area).

Remarks: Following KUPSCH et al. (1971) the south-alpine Paleozoic units of the Eastern Karavanke Mountains (Text-Fig. 4) are separated by the Triassic of the Koschuta (Trögen Klamm). The area to the south is called the Paleozoic of Seeberg (Seeberg Aufbruch sensu SIEWERT, 1984; informal) and the area north if it is known as Paleozoic of Eisenkappel (Trögen Group sensu MOSHAMMER & FLÜGEL, 1987; formalized). In general, the Seeberg Aufbruch ("Window") can be distinguished from the Trögen Group according to differences within the depositional environment that developed regionally (LOESCHKE & ROLSER, 1971; SIEWERT, 1984: p. 41–45; MOSHAMMER, 1990: Fig. 2).

Complementary references: LOESCHKE (1974), JAEGER et al. (1975), SCHÖNLAUB (1979), MOSHAMMER (1987), SCHÖNLAUB & HISTON (1999, 2000), HUBMANN et al. (2003, 2006).

„Untere Schichten“ / “Untere Schichten”

THOMAS J. SUTTNER

Validity: Invalid; "Untere Schichten" first mentioned by GAERTNER (1931); additional work on this unit has been done by KUPSCH et al. (1971) and SCHÖNLAUB (1979).

Type area: ÖK50-UTM, map sheet 4114 Bad Eisenkappel (ÖK50-BMN, map sheets 212 Vellach, 213 Bad Eisenkappel).

Type section: -

Reference section(s): Feistritzgraben (SCHÖNLAUB, 1979).

Derivation of name: In the strict sense the name "Untere Schichten" represents a lithostratigraphic term that was introduced by GAERTNER (1931: p. 133).

Synonyms: Tonschiefer-Lydit-Sedimentation (KUPSCH et al., 1971).

Lithology: Blackish shale and sandstones.

Fossils: Brachiopods, graptolites.

Origin, facies: Marine limestone, neritic unit.

Chronostratigraphic age: Upper Ordovician (Hirnantian).

Biostratigraphy: *persculptus* graptolite zone (SCHÖNLAUB, 1979: Fig. 19, p. 45).

Thickness: Approx. 20 m.

Lithostratigraphically higher rank unit: -

Lithostratigraphic subdivision: -

Underlying unit(s): Coquina Limestones (unconformable contact?).

Overlying unit(s): Nodular Limestone (unconformable contact).

Lateral unit(s): Equivalent units are exposed within the Carnic Alps (JAEGER et al., 1975).

Geographic distribution: Karavanke Mountains (Eisenkappel and Seeberg area).

Remarks: -

Complementary references: LOESCHKE (1974), SCHÖNLAUB & HISTON (1999, 2000).

Knollenkalk / Nodular Limestone

THOMAS J. SUTTNER

Validity: Invalid; mentioned by ROLSER (1968) and KUPSCH et al. (1971); biostratigraphy of an equivalent, but more distally deposited unit by MOSHAMMER (1989).

Type area: ÖK50-UTM, map sheet 4114 Bad Eisenkappel (ÖK50-BMN, map sheets 212 Vellach, 213 Bad Eisenkappel).

Type section: -

Reference section(s): Section near Gehöft Illitsch south of Finkenstein (SCHÖNLAUB, 1979); Trögen Klamm section-group A (N 46°28'04" / E 14°30'28"), B (N 46°28'00" / E 14°30'24"), E (N 46°28'00" / E 14°30'30") published by MOSHAMMER (1989, 1990).

Derivation of name: After facies characters.

Synonyms: grobspätige Crinoidenkalkfazies (SCHÖNLAUB, 1975); schwarze Kieselschiefer (MOSHAMMER, 1989).

Lithology: Bedded crinoidal limestone, dark siliceous shale.

Fossils: Brachiopods, chitinozoans, conodonts, crinoids, trilobites.

Origin, facies: Marine limestone, pelagic unit.

Chronostratigraphic age: Llandovery.

Biostratigraphy: *stauognathoides* and *celloni* conodont zones (MOSHAMMER, 1989: p. 625).

Thickness: Approx. 15 m.

Lithostratigraphically higher rank unit: -

Lithostratigraphic subdivision: -

Underlying unit(s): "Untere Schichten" (unconformable contact).

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

Lateral unit(s): -

Geographic distribution: Karavanke Mountains (Eisenkappel and Seeberg area).

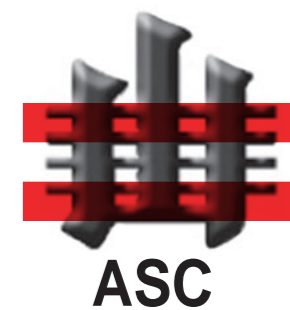
Remarks: -

Complementary references: LOESCHKE & ROLSER (1971), LOESCHKE (1974), SCHÖNLAUB (1979), TESSENHORN (1983), MOSHAMMER (1987), SCHÖNLAUB & HISTON (1999, 2000).

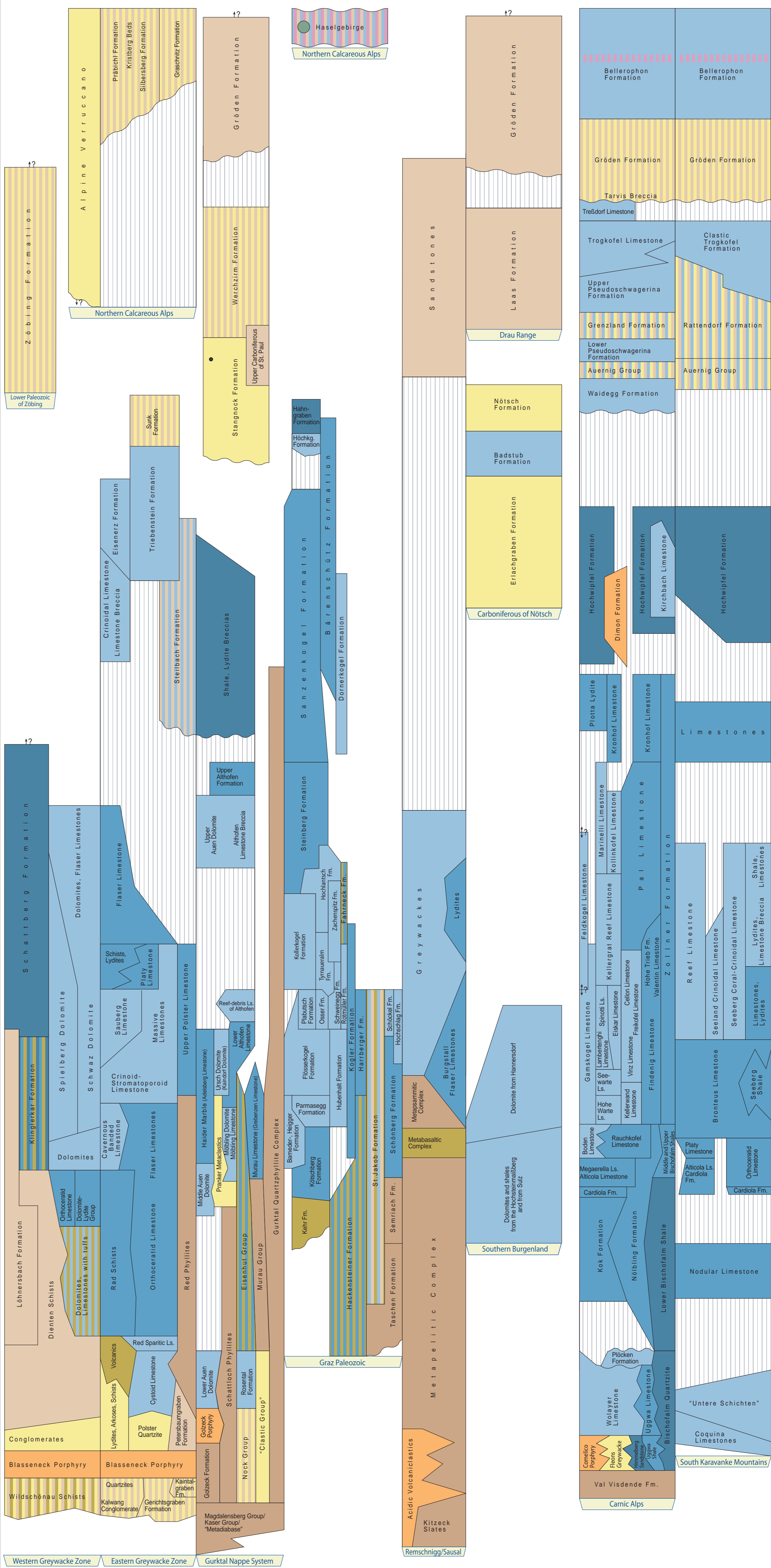
Austrian Stratigraphic Chart 2004 - Paleozoic

(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 / LOPINGIAN				
		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				
					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			EMSIAN	400		
						405			
		PRAGIAN	410						
		LOCHKOVIAN	415						
		PERMIAN	LOWER DEVONIAN			LUDFORDIAN / GORSTIAN	420	PERMIAN	LOWER DEVONIAN
						HOMERIAN / SHEINWOOD	425		
TELYCHIAN	430								
AERONIAN	435								
RHUDDANIAN	440								
HIRNANTIAN	443.7								
445									
450									
455									
460									
PERMIAN	UPPER ORDOVICIAN	DARRIWILIAN	465	PERMIAN	UPPER ORDOVICIAN				
		470							
		475							
		480							
		485							
		488.3							
		490							
		495							
		500							
		505							
PERMIAN	MIDDLE CAMBRIAN	PAIBIAN	510	PERMIAN	MIDDLE CAMBRIAN				
		515							
		520							
		525							
		530							
		535							
		540							
		542							
		CAMBRIAN	LOWER CAMBRIAN			542	CAMBRIAN	LOWER CAMBRIAN	
						535			
530									
525									
520									
515									
510									
505									
500									
495									



- 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

© Commission for the Paleontological and Stratigraphical Research of Austria (CPSA) of the Austrian Academy of Sciences and Austrian Stratigraphic Commission

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

The Austrian Stratigraphic Chart 2004 - Paleozoic is a supplement of:
 Hubmann, B., Ebner, F., Ferretti, A., Kido, E., Krainer, K., Neubauer, F., Schönlaub, H.-P. & Suttner, T.J. (2014): The Paleozoic Era (them), 2nd edition. - In: Piller, W.E. (Ed.): The lithostratigraphic units of the Austrian Stratigraphic Chart 2004 (sedimentary successions) - Vol. 1 - Abhandlungen der Geologischen Bundesanstalt, 66, 9-133, Wien.

Printing: Grasl Druck & Neue Medien GmbH, Bad Vöslau 2014

Landesmuseum Joanneum

OAW

Geologische Bundesanstalt

UNI GRAZ

OGG

Universität Wien

Naturhistorisches Museum Wien