

Synonyms: Upper part of the Nötschgraben-Gruppe and Pölland-Gruppe in FLÜGEL & KODSI (1968) and KODSI & FLÜGEL (1970).

Lithology: Clastic sequence of greyish shales, mudstones, siltstones, sandstones and medium to coarse grained conglomerates.

Fossils: Trilobites, rugose corals, brachiopods, goniatites, nautiloids, gastropods, crinoids, echinoids, ophiocistoids, bryozoans, phyllocarids, arachnids (spiders), monoplacophores, serpulids, plants (see SCHRAUT, 1999).

Origin, facies: Shallow marin, below storm wave base.

Chronostratigraphic age: Serpukhovian.

Biostratigraphy: Based on corals and plants (*Lepidophyta*, *Calamites*).

Thickness: 400–600 m.

Lithostratigraphically higher rank unit: -

Lithostratigraphic subdivision: -

Underlying unit(s): Badstub Formation.

Overlying unit(s): Gröden Formation (?). The contact between the two units is, however, not exposed.

Lateral unit(s): -

Geographic distribution: Northern side of Gail Valley between Windische Höhe in the west and Mount Dobratsch (Villacher Alpe) in the east (see map by SCHÖNLAUB, 1985d).

Remarks: -

Complementary references: -

Drauzug / Drau Range

The base of the Mesozoic Drau Range is composed of late to post-Variscan sediments of early to late Permian ages. These sediments reach up some 500 m in thickness and overlie unconformably different types of metamorphic rocks ("Gailtalkristallin"). The sedimentary sequence is characterized by molasse-type sediments deposited in intermontane basins which were formed by block and wrench faulting during the late orogenic stage of the Variscan cycle. The Permian sedimentation took place under increasingly semiarid to arid climatic conditions; the sudden alteration in sedimentation (Alpine Buntsandstein), obviously caused by a climatic change presumably represents the Permian/Triassic boundary (KRAINER, 1993c).

Laas-Formation / Laas Formation

HANS P. SCHÖNLAUB

Validity: Valid; first denomination and formalized by NIEDERMAYR & SCHERIAU-NIEDERMAYR (1982: p. 35–40).

Type area: ÖK50-UTM, map sheet 3110 Kötschach-Mauthen (ÖK50-BMN, map sheet 197 Kötschach), Carinthia, between Gailberg Pass and Maiengraben near the village of St. Daniel.

Type section: N 45°41'39" / E 13°00'57". Northeast of the small village of Lanz (1,038 m) NNE of Kötschach at an altitude of 1,300 m along the forest road from Lanz to Stelzling Hütte (NIEDERMAYR & SCHERIAU-NIEDERMAYR, 1982: p. 37; KRAINER, 1990b: p. 64)

Reference section(s): Tiebelgraben, Riedgraben between the villages Paternion and Stockenboi (KRAINER, 1990b) on ÖK50-BMN, map sheets 199 Hermagor, 200 Arnoldstein.

Derivation of name: Named after the village of Laas northwest of Kötschach-Mauthen.

Synonyms: Postvariszische Transgressionsserie, Liegende Serie, Serie von Laas, Laaser Schichten, Kontinentaldetritisches Perm, Freudenberg Schichten (RIEHL-HERWIRSCH, 1965, 1972; NIEDERMAYR, 1975; NIEDERMAYR & SCHERIAU-NIEDERMAYR, 1982; KRAINER, 1985, 1990b, 1993b).

Lithology: Conglomerates, breccias, red and grey sandstones and siltstones.

Fossils: Plants, ostracods, *Spirorbis*, fish scales, tetrapod imprints (*Ichniotherium cottae*), root and soil horizons, plants.

Origin, facies: Clastic proximal to distal alluvial fan deposits intercalated with highly bioturbated playa-sediments and up to 80 m thick rhyolitic pyroclastics (ash flow tuffs, ignimbrites) in the upper part.

Chronostratigraphic age: Asselian (Lower Permian).

Biostratigraphy: *callipteris conferta* Zone.

Thickness: Up to 150 meters.

Lithostratigraphically higher rank unit: -

Lithostratigraphic subdivision: -

Underlying unit(s): Gailtal Crystalline Complex.

Overlying unit(s): Coarse clastics of the Gröden Formation.

Lateral unit(s): -

Geographic distribution: Northern side of Gail Valley overlying the Gailtal Crystalline Complex in the surroundings north of Kötschach-Mauthen (see map by SCHÖNLAUB, 1985c) as well as on the northern side of the Gailtal Alps (Drauzug).

Remarks: -

Complementary references: -

Gröden-Formation / Gröden Formation

(see also description in Carnic Alps)

HANS P. SCHÖNLAUB

Validity: See entry Gröden Formation in Carnic Alps.

Type area: See entry Gröden Formation in Carnic Alps.

Type section: See entry Gröden Formation in Carnic Alps.

Reference section(s): See entry Gröden Formation in Carnic Alps.

Derivation of name: See entry Gröden Formation in Carnic Alps.

Synonyms: See entry Gröden Formation in Carnic Alps.

Lithology: Coarse clastic sequence of conglomerates interbedded with red-colored sandstones interpreted as alluvial fan sequence of a braided river system in an semi-arid to arid climate. The red color is derived from finely dispersed hematite. Locally, in the middle part magnesite and dolomite bearing sand- and siltstones occur containing caliche crusts and playa sediments indicating a temporal evaporitic environment.

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 / Dufuflian	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			
		DEVONIAN	LOWER DEVONIAN			PRAGIAN	410		
						415			
		PERMIAN	LOWER DEVONIAN			LOCHKOVIAN	420	PERMIAN	LOWER DEVONIAN
						425			
430									
435									
440									
443.7									
445									
450									
455									
460									
PERMIAN	UPPER ORDOVICIAN	LUDFORDIAN / GORSTIAN	465	PERMIAN	UPPER ORDOVICIAN				
		HOMERIAN / SHEINWOOD	470						
		TELYCHIAN	475						
		AERONIAN	480						
		RHUDDANIAN	485						
		HIRNANTIAN	490						
		495							
		498.3							
		499							
		500							
PERMIAN	MIDDLE ORDOVICIAN	DARRIWILIAN	505	PERMIAN	MIDDLE ORDOVICIAN				
		510							
		515							
		520							
		525							
		530							
		535							
		540							
		542							
		PERMIAN	LOWER ORDOVICIAN			TREMA-DOCIAN	545	PERMIAN	LOWER ORDOVICIAN
550									
555									
560									
565									
570									
575									
580									
585									
590									
PERMIAN	UPPER CAMBRIAN	PAIBIAN	595	PERMIAN	UPPER CAMBRIAN				
		600							
		605							
		610							
		615							
		620							
		625							
		630							
		635							
		640							
PERMIAN	MIDDLE CAMBRIAN	MIDDLE CAMBRIAN	545	PERMIAN	MIDDLE CAMBRIAN				
			550						
			555						
			560						
			565						
			570						
			575						
			580						
			585						
			590						
PERMIAN	LOWER CAMBRIAN	LOWER CAMBRIAN	595	PERMIAN	LOWER CAMBRIAN				
			600						
			605						
			610						
			615						
			620						
			625						
			630						
			635						
			640						



- 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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