

Derivation of name: After Magdalensberg (KAHLER, 1953: p. 12).

Synonyms: Kalktrapp und dioritischer Porphy (ROSTHORN & CANAVAL, 1853); grüne Schiefer (LIPOLD, 1856a); paläozoische Grauwackenschiefer und Diabasgesteine (BECK, 1931); Mandelgesteine und Lockergesteine (KAHLER & WOLFSEGGGER, 1934); Magdalensbergserie (RIEHL-HERWIRSCH, 1970); Magdalensberg-Folge [partim] (THIEDIG, 2005).

Lithology: Phyllitic shale, conglomerate layers; pillow lavas; greenish and purple tuffs, ferruginous dolomitic tuffs with carbonatic lenses, lydites.

Fossils: An overview of the fauna is provided by RIEHL-HERWIRSCH (1970) who listed bryozoans, chitinozoans (see also GROSCHOPF, 1970), conodonts, graptolites, ostracods, radiolarians and scolecodonts. Macrofossils from the Magdalensberg Group are brachiopods obtained by SEELMEIER (1939, 1940) and HAVLICEK et al. (1987). Acritarchs were described by REITZ (1994).

Origin, facies: Submarine stratovolcano(s).

Chronostratigraphic age: Floian–Darrwilian (?).

Biostratigraphy: According to the acritarch assemblage Early to Middle Ordovician age is suggested for the Lower Magdalensberg Group by REITZ (1994).

Thickness: > 500 m.

Lithostratigraphically higher rank unit: -

Lithostratigraphic subdivision: Following REITZ (1994), the Magdalensberg Group is divided into a Lower Magdalensberg Group (dominated by clastic rocks) and Upper Magdalensberg Group (dominated by volcanic rocks). This subdivision follows earlier discriminations of KAHLER (1953), RIEHL-HERWIRSCH (1970) and GROSCHOPF (1970).

Underlying unit(s): -

Overlying unit(s): Golzeck Formation, Schattloch Phyllites, Nock Group; “Gurktal Quartzphyllite Complex”.

Lateral unit(s): -

Geographic distribution: Carinthia, highland east of Magdalensberg between St. Christoph and Brückl (RIEHL-HERWIRSCH, 1970), in the surrounding of Bleiburg and at the border to Slovenia at St. Georgen (compare REITZ, 1994).

Remarks: -

Complementary references: PETERS (1855), MURBAN (1938), FRITSCH et al. (1960), STREHL (1962), FRITSCH (1969), BUCHROITHNER (1979), NEUBAUER (1979), SCHÖNLAUB (1979, 1992), NEUBAUER & PISTOTNIK (1984), GOSEN et al. (1985), MULFINGER (1988), LOESCHKE (1989a), PISTOTNIK (1989), HOLZER & GORITSCHNIG (1997), KETTRUP (1998).

Golzeck-Formation / Golzeck Formation

THOMAS J. SUTTNER

Validity: Valid; the unit is well described as “Golzeck-Schiefer” by NEUBAUER (1979), but the name Golzeck Formation first appears on the scheme of SCHÖNLAUB (1992: Fig. 13, p. 399).

Type area: ÖK50-UTM, map sheets 3230 Tamsweg, 4225 Murau (ÖK50-BMN, map sheets 158 Stadl, 159 Murau).

Type section: The type section is located south of Murau in the Auen area (N 47°02'31" / E 14°09'23"; N 47°02'37" / E 14°09'28"; N 47°02'26" / E 14°09'25") near the Haid-

er farmstead along a forest road (NEUBAUER, 1979: Fig. 2, p. 460).

Reference section(s): -

Derivation of name: After Mount Golzeck (in the Auen area).

Synonyms: Arkosenschiefer (THURNER, 1958); Golzeck-Schiefer (NEUBAUER, 1979).

Lithology: grey to greyish green shale, metapsammities, phyllitic shale, ferruginous dolomite (NEUBAUER, 1979: p. 459).

Fossils: Conodonts, crinoids.

Origin, facies: Marine deposits consisting of weathering products of acidic volcanites and metamorphic areas (compare NEUBAUER, 1984: Fig. 17, p. 56); phyllitic unit.

Chronostratigraphic age: Middle–Late Ordovician (NEUBAUER, 1979).

Biostratigraphy: Among six conodont taxa described from this unit (compare NEUBAUER, 1979), fragments assigned to *Amorphognathus?* sp. indicate Late Ordovician. Based on the assemblage provided by NEUBAUER (1979), no further assignment can be made, which would constrain the unit to a distinctive biostratigraphic zone.

Thickness: > 100 m.

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

Lithostratigraphic subdivision: -

Underlying unit(s): Magdalensberg Group, Kaser Group, “Metadiabase”.

Overlying unit(s): Golzeck Porphyry (conformable contact).

Lateral unit(s): Schattloch Phyllites (conformable contact).

Geographic distribution: Styria and Carinthia, in the surrounding of Murau, especially south of it near the Styrian/Carinthian states border in the area of Auen (NEUBAUER, 1979: Fig. 1).

Remarks: NEUBAUER (1979) distinguished three groups within the Lower Paleozoic sequence of the Gurktal Nappe: the Auen Group, Pranker Group and Murau Group. Within the Auen Group (compare Text-Fig. 3) mainly carbonatic units (Lower Auen Dolomite, Middle Auen Dolomite, Haider Marble and Upper Auen Dolomite) together with shales (Golzeck Formation) and magmatic deposits (Golzeck Porphyry) are lumped.

Complementary references: SCHÖNLAUB (1979), NEUBAUER & PISTOTNIK (1984), GOSEN et al. (1985).

Golzeck-Porphyr / Golzeck Porphyry

THOMAS J. SUTTNER

Validity: Invalid; first mapped by GEYER (1891a, b); well described by NEUBAUER (1979).

Type area: ÖK50-UTM, map sheets 3230 Tamsweg, 4225 Murau (ÖK50-BMN, map sheets 158 Stadl, 159 Murau).

Type section: -

Reference section(s): Section in the vicinity of Haid-er farmstead located south of Murau in the Auen area (N 47°02'27" / E 14°09'24").

Time Scale			Auen Group (NEUBAUER, 1979)	Pranker Group (NEUBAUER, 1979)	Murau Group (NEUBAUER, 1979)	Althofen Group (SCHÖNLAUB, 1971c)	
DEVONIAN	U	Famennian	15.3			Upper Althofen Formation	
		Frasnian	10.8	Upper Auen Dolomite		Althofen Limestone Breccia ?	
	M	Givetian	6.5				
		Eifelian	5.7		Ursch Dolomite	Reef-debris limestones of Althofen	
	L	Emsian	9.5	Haider Marble			Lower Althofen Limestone
		Pragian	4.2				
		Lochkovian	4.8		Pranker Metaclastics		
	SILURIAN	Pr	Ludfordian	2.7	Middle Auen Dolomite	Schattloch Phyllites	Murau Group
			Gorstian	4.2			
		West-Loch	Homerian	5.5			
Sheinwoodian							
Llandoverly		Telychian					
		Aeronian	15.5				
ORDOVICIAN	U	Rhuddanian					
		Hirnantian	1.9	Lower Auen Dolomite			
	M	Katian	10.2				
		Sandbian	5.1	Golzeck Porphyry			
		Darriwilian		Golzeck Formation			

Text-Fig. 3.
Literature-based subdivision and correlation of the Auen, Pranker, Murau and Althofen groups (Gurktal Nappe).

Derivation of name: After a magmatic unit at Mount Golzeck (in the Auen area).

Synonyms: Golzeck-Quarzporphyr (NEUBAUER, 1979).

Lithology: Quartzporphyry and purple metatuffs.

Fossils: -

Origin, facies: Following NEUBAUER (1984: p. 56) the Golzeck Porphyry forms the volcanic basement of a submarine swell facies which is represented by the overlying carbonatic development of the Auen Group; magmatic unit.

Chronostratigraphic age: Late Ordovician age is concluded by GOSEN et al. (1985: p. 696), as this unit is overlain by meta-rhyolites and carbonates (Lower Auen Dolomite), of which the base of the latter deposits is assigned to the *ordovicicus* Zone (NEUBAUER, 1979: p. 464).

Biostratigraphy: -

Thickness: Approx. 7 m.

Lithostratigraphically higher rank unit: Auen Group (see remarks at Golzeck Formation).

Lithostratigraphic subdivision: -

Underlying unit(s): Golzeck Formation (conformable contact).

Overlying unit(s): Lower Auen Dolomite (conformable contact).

Lateral unit(s): Schattloch Phyllites.

Geographic distribution: Styria and Carinthia, in the surrounding of Murau, especially south of it near the Styrian/Carinthian states border in the area of Auen (NEUBAUER, 1979: Fig. 1).

Remarks: -

Complementary references: SCHÖNLAUB (1979, 1992), NEUBAUER & PISTOTNIK (1984).

Unterer Auen-Dolomit / Lower Auen Dolomite

THOMAS J. SUTTNER

Validity: Invalid; the name "Unterer Auen-Dolomit" for this unit was first used by NEUBAUER (1979: p. 464), who mapped and revised the Lower Paleozoic succession of low metamorphic sediments around Murau.

Type area: ÖK50-UTM, map sheets 3230 Tamsweg, 4225 Murau (ÖK50-BMN, map sheets 158 Stadl, 159 Murau).

Type section: -

Reference section(s): Section approx. 100 m north of Haider farmstead located south of Murau in the Auen area (N 47°02'33" / E 14°09'16").

Derivation of name: After Auen area (compare locality map of NEUBAUER, 1979: Fig. 1).

Synonyms: Dolomitkeile von Laßnitzau [partim] (TURNER, 1956: p. 164).

Lithology: Micaceous light pink to greenish marbles, ferruginous dolomite lense, bright and grey dolomite (massive and bedded intervals).

Fossils: Conodonts.

Origin, facies: Shallow marine, neritic unit.

Chronostratigraphic age: Katian to Hirnantian (NEUBAUER, 1979).

Biostratigraphy: *ordovicicus* conodont zone.

Thickness: 6 m.

Lithostratigraphically higher rank unit: Auen Group (see remarks at Golzeck Formation).

Lithostratigraphic subdivision: -

Underlying unit(s): Golzeck Porphyry (conformable contact).

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	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	350	DEVONIAN	UPPER DEVONIAN		
				FRASNIAN	355				
				GIVETIAN	360				
		EIFELIAN	365						
		DEVONIAN	LOWER DEVONIAN	EMSIAN	370				
				LOCHKOVIAN	375				
		PERMIAN	DEVONIAN	LUDFORDIAN / GORSTIAN	380			DEVONIAN	MIDDLE DEVONIAN
				HOMERIAN / SHEINWOOD	385				
				TELYCHIAN	390				
				AERONIAN	395				
RHUDDANIAN	400								
DEVONIAN	LOWER DEVONIAN			PRAGIAN	405				
				LOCHKOVIAN	410				
PERMIAN	DEVONIAN			WEN-LOCK / LOW	415	DEVONIAN	LOWER DEVONIAN		
				HIRNANTIAN	420				
				ORDOVICIAN	425				
		ORDOVICIAN	UPPER ORDOVICIAN	DARRIWILIAN	430				
				TREMA-DOCIAN	435				
		ORDOVICIAN	MIDDLE ORDOVICIAN	PAIBIAN	440				
				UPPER CAMBRIAN	445				
		CAMBRIAN	CAMBRIAN	UPPER CAMBRIAN	450			CAMBRIAN	MIDDLE CAMBRIAN
				MIDDLE CAMBRIAN	455				
				LOWER CAMBRIAN	460				
CAMBRIAN	LOWER CAMBRIAN			PAIBIAN	465				
				UPPER CAMBRIAN	470				
CAMBRIAN	LOWER CAMBRIAN			UPPER CAMBRIAN	475				
				LOWER CAMBRIAN	480				
CAMBRIAN	LOWER CAMBRIAN			UPPER CAMBRIAN	485				
				LOWER CAMBRIAN	490				
CAMBRIAN	LOWER CAMBRIAN			UPPER CAMBRIAN	495				
		LOWER CAMBRIAN	500						
CAMBRIAN	LOWER CAMBRIAN	UPPER CAMBRIAN	505						
		LOWER CAMBRIAN	510						
CAMBRIAN	LOWER CAMBRIAN	UPPER CAMBRIAN	515						
		LOWER CAMBRIAN	520						
CAMBRIAN	LOWER CAMBRIAN	UPPER CAMBRIAN	525						
		LOWER CAMBRIAN	530						
CAMBRIAN	LOWER CAMBRIAN	UPPER CAMBRIAN	535						
		LOWER CAMBRIAN	540						
CAMBRIAN	LOWER CAMBRIAN	UPPER CAMBRIAN	542						
		LOWER CAMBRIAN	544						



- 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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