

(DALLMEYER et al., 1992; HANDLER et al., 1999) and the unconformable sedimentary contact between the metamorphics and the conglomerates suggests a post-Middle Devonian age and a position of this conglomerate within the Kaintaleck Nappe of the E-GWZ (NEUBAUER et al., 1994).

Complementary references: SCHÖNLAUB (1979, 1980a, 1982a), EBNER et al. (1989), SCHÖNLAUB & HEINISCH (1993).

Gerichtsgraben-Formation / Gerichtsgraben Formation

FRITZ EBNER

Validity: Invalid; first detailed description in the rank of a group by FLAJS & SCHÖNLAUB (1976). In the ASC 2004 this unit was regarded as a formation, it is, however, not formalized.

Type area: Präbichl area SE Eisenerz (ÖK50-UTM, map sheet 4215 Eisenerz, ÖK50-BMN, map sheet 101 Eisenerz).

Type section: NE flank of Gerichtsgraben SE of Eisenerz (N 47°32'11" / E 14°55'39"; ÖK50-UTM, map sheet 4215 Eisenerz, ÖK50-BMN, map sheet 101 Eisenerz) along the road from Präbichl Pass to Gsollgraben.

Reference section(s): -

Derivation of name: After the Gerichtsgraben SE of Eisenerz (ÖK50-UTM, map sheet 4215 Eisenerz, ÖK50-BMN, map sheet 101 Eisenerz).

Synonyms: Partim "Feinschichtige quarzitische Grauwackenschiefer" (HAMMER, 1925); "Silurdevon" (HIESSLEITNER, 1929), "Gerichtsgraben Gruppe" (FLAJS & SCHÖNLAUB, 1976); partim "Untere Schiefer" (FLAJS & SCHÖNLAUB, 1976); "Schichten unter dem Porphyroid" (DAURER & SCHÖNLAUB, 1978; SCHÖNLAUB, 1982a).

Lithology: Uniform grey sericite schists, microfolded phyllitic schists, platy sandstones and schists with detrital mica; subordinate greywacke and graphite schists. Relicts of graded bedding and cross bedding are rare. Intercalations of grey-yellowish and sometimes banded limestones occur especially in three levels along the road from Präbichl to Eisenerz at the NE flank of the Gerichtsgraben. Laterally, they interfinger with metamarls and predominantly dark schists. Other intercalations are banded lydites (FLAJS & SCHÖNLAUB, 1976; SCHÖNLAUB, 1982a).

Fossils: Conodonts (FLAJS & SCHÖNLAUB, 1976).

Origin, facies: Fine-clastic, sometimes calcareous and euxinic basinal environment.

Chronostratigraphic age: Upper Ordovician (Katian) (FLAJS & SCHÖNLAUB, 1976).

Biostratigraphy: Conodonts from the limestone intercalations belong to the *Amorphognatoides ordovicicus* Zone (upper Katian–Hirnantian).

Thickness: Strong regional variation from 300 m (Polster area; ÖK50-UTM, map sheet 4215 Eisenerz, ÖK50-BMN, map sheet 101 Eisenerz) to > 1,000 m in the Lange Teichen valley (ÖK50-UTM, map sheet 4215 Eisenerz, ÖK50-BMN, map sheet 131 Kalwang).

Lithostratigraphically higher rank unit: -

Lithostratigraphic subdivision: -

Underlying unit(s): Deeper tectonic units of the E-GWZ (Kaintaleck Nappe, Silbersberg Nappe, Veitsch Nappe) (SCHÖNLAUB, 1979; NEUBAUER et al., 1994).

Overlying unit(s): Blasseneck Porphyry.

Lateral unit(s): Due to the superposition by the Blasseneck Porphyry the sequences around the Präbichl Pass and along the Lange Teichen valley should be at least partly stratigraphic equivalents.

Geographic distribution: E-GWZ; Styria, Eisenerzer Alpen.

Remarks: In the Präbichl area the strata below the Blasseneck Porphyry were summarized as the Gerichtsgraben Group by FLAJS & SCHÖNLAUB (1976). For a possible position of the Kalwang Conglomerate at the structural base of the Gerichtsgraben Formation see the description of the Kalwang Conglomerate.

Complementary references: SCHÖNLAUB (1980a), EBNER et al. (1989), SCHÖNLAUB & HEINISCH (1993).

Quarzite / Quartzites

FRITZ EBNER

Remarks: Metaclastics of the Gerichtsgraben Fm. always include intercalations of metasandstones and quartzites. A prominent occurrence of quartzite as shown in the ASC 2004 is overestimated and therefore not mentioned in Text-Fig. 2.

Kaintalgraben-Formation / Kaintalgraben Formation

FRITZ EBNER

Validity: Invalid; first description as "Kaintal-Porphyroid" by HERMANN (1992) which was later named Kaintalgraben Formation (NEUBAUER et al., 1994).

Type area: ÖK50-UTM, map sheet 4216 Bruck an der Mur (ÖK50-BMN, map sheets 132 Trofaiach and 133 Leoben).

Type section: Along Kaintalbach valley, ~4,6 km NNE Trofaiach (N 47°26'39" / E 15°04'17"), ÖK50-UTM, map sheet 4216 Bruck an der Mur (ÖK50-BMN, map sheet 132 Trofaiach). In the early literature (HAUSER, 1938) micaschists were described from this location.

Reference section(s): -

Derivation of name: After the valley Kaintalgraben (ÖK50-UTM, map sheet 4216 Bruck an der Mur, ÖK50-BMN, map sheet 132 Trofaiach).

Synonyms: "Kaintal-Porphyroid" (HERMANN, 1992); "Kaintalgraben Porphyroid" (NEUBAUER et al., 1994).

Lithology: Light, strongly deformed and mm-laminated porphyroids with porphyroblastic texture (with potassium feldspar, plagioclase and quartz).

Fossils: -

Origin, facies: Ignimbrite, caused by a pyroclastic density current.

Chronostratigraphic age: ?Upper Ordovician.

Biostratigraphy: -

Thickness: Up to 80 m.

Lithostratigraphically higher rank unit: "Norische Gruppe" (invalid) (HERMANN, 1992).

Lithostratigraphic subdivision: -

Underlying unit(s): Phyllites of the Gerichtsgraben Formation.

Overlying unit(s): Quartzitic phyllites of the Gerichtsgraben Formation.

Lateral unit(s): Gerichtsgraben Formation; ? correlation with acid tuffs above the Kalwang Conglomerate N Kalwang/Lange Teichen valley (LOESCHKE et al., 1990; NEUBAUER et al., 1994: p. 69).

Geographic distribution: E-GWZ; Styria, Kaintaleck area.

Remarks: -

Complementary references: -

Blasseneck Porphyroid / Blasseneck Porphyry

FRITZ EBNER

Validity: Invalid; lithostratigraphic unit used since PANTZ & ATZL (1814) in terms of a formation but not formalized; well characterized by HEINISCH (1981).

Type area: Eisenerzer Alpen, ÖK50-UTM, map sheet 4215 Eisenerz (ÖK50-BMN, map sheet 101 Eisenerz) and ÖK50-UTM, map sheet 4214 Trieben (ÖK50-BMN, map sheet 131 Kalwang).

Type section: Not yet indicated.

Reference section(s): -

Derivation of name: After Mt. Blaseneck (N 47°29'54" / E 14°37'09"), ÖK50-UTM, map sheet 4214 Trieben (ÖK50-BMN, map sheet 131 Kalwang) in the Eisenerzer Alpen/Styria. The correct writing of the type locality in the ÖK50-BMN, map sheet 131 Kalwang is Blaseneck!

Synonyms: "Blasseneckgneis" (FOULLON, 1886); "Körnige Grauwacke, obere körnig-schiefrige Grauwacke" (SCHOUPEPÉ, 1854; VACEK, 1900).

Lithology: Some types of ignimbrites, unwelded tuffs and volcanoclastics, often intensively intercalated with fine siliciclastic rocks. Geochemically alkali-rhyolitic and rhyolitic types are dominating over rhyodacite, dacite and trachyandesite (HEINISCH, 1981).

Fossils: -

Origin, facies: Thick sequences are interpreted as sub-aerially extruded ignimbrites in topographic highs whereas the volcanic debris has been washed by sediment flows into shallow marine basins (MOSTLER, 1970; HEINISCH, 1981; HEINISCH & SCHÖNLAUB, 1993). They resulted from an extended late Ordovician magmatic event which is evident overall the Eastern and Southern Alps. However, modern plate tectonic concepts are not sufficient to explain the geodynamic relevance of this "Porphyroid"-event (HEINISCH, 1981; LOESCHKE & HEINISCH, 1993).

Chronostratigraphic age: Upper Ordovician (Katian–Hirnantian).

Biostratigraphy: In the E-GWZ dating was possible due to the position of the Blasseneck Porphyry between formations with conodonts of the *Amorphognathus ordovicicus* Zone (FLAJS & SCHÖNLAUB, 1976). The porphyroids of the W-GWZ were correlated with the Blasseneck Porphyry of the E-GWZ due to lithological criteria and their position below Llandoveryan limestones dated by conodonts (MOSTLER, 1964, 1968, 1970).

Thickness: The thickness of the total volcanogenic sequence including all clastic and volcanoclastic materials displays strong regional differences even along short distances (HEINISCH, 1981: Figs. 2, 3).

W-GWZ: up to 600 m; E-GWZ: Eisenerzer Alpen: up to 1,500 m (Polster area: 400 m, Rötziggraben: > 1,000 m, Blaseneck: 1,500 m).

Lithostratigraphically higher rank unit: -

Lithostratigraphic subdivision: -

Underlying unit(s): E-GWZ: Gerichtsgraben Formation (FLAJS & SCHÖNLAUB, 1976; SCHÖNLAUB, 1982a, b).

W-GWZ: Wildschönau Schists (MOSTLER, 1970; SCHÖNLAUB, 1979, 1980a). In the Wildseeloder Unit W Zell am See the underlying schists are sheared off (HEINISCH, 1988).

Overlying unit(s): The Blasseneck Porphyry is overlain above erosional unconformities in the E-GWZ by the Polster Quartzite (FLAJS & SCHÖNLAUB, 1976) and in the W-GWZ by "Conglomerates" and Llandoveryan "Dolomites, Limestones with tuffs" (MOSTLER, 1964, 1968, 1970).

Lateral unit(s): W-GWZ: parts of the Wildschönau Schists. E-GWZ: Volcanoclastics and coarse quartzites (= reworked Blasseneck Porphyry; SCHÖNLAUB, 1982a).

Geographic distribution: W-GWZ: Tyrol – Salzburg: Kitzbüheler Alpen, Dientener Berge, N Pongau.

E-GWZ: from the Eisenerzer Alpen in Styria to Gloggnitz in Lower Austria (HEINISCH, 1981).

Remarks: In the GWZ a great variety of low grade metamorphic acid volcanic rocks of calc-alkaline geochemical character is summarized within the Blasseneck Porphyry. The volcanic origin of these rocks was already recognized by PANTZ & ATZL (1814), some later authors, however, postulated a paragne formation until the volcanogenic origin was renewed (OHNESORGE, 1905; REDLICH, 1907, 1908).

Complementary references: ANGEL (1919), OHNESORGE (1909), CORNELIUS (1952a), FLAJS (1964), MALZER (1964), EBERHARD & MOSTLER (1966), BAUER et al. (1969), MAVRIDIS & MOSTLER (1970), LOESCHKE (1977), TOLLMANN (1977), EBNER et al. (1989), SCHLAEGEL-BLAUT (1990), SCHÖNLAUB & HEINISCH (1993).

Lydite, Arkosen, Schiefer / Lydites, Arkoses, Schists

FRITZ EBNER

Validity: Invalid; informal working term.

Type area: ÖK50-UTM, map sheet 4215 Eisenerz (ÖK50-BMN, map sheet 101 Eisenerz, ÖK50-BMN, map sheets 131 Kalwang and 132 Trofaiach).

Type section: Not indicated.

Reference section(s): -

Derivation of name: According to lithologies.

Synonyms: Partim "(feinschichtige) Grauwackenschiefer" (HAMMER, 1924); "Schiefer über dem Porphyroid i.A." (SCHÖNLAUB & DAURER, 1978), Grauwackenschiefer (SCHÖNLAUB, 1982a).

Lithology: Grey-striped schists, sericitic schists, sandy schists, black schists, alun schists, marly schists, lydites, arkoses and sandstones associated with basic metavolcanics and scattered dark limestones.

Fossils: Some conodonts in limestones of the hanging parts.

Origin, facies: Basinal environment, partly euxinic and with volcanic influence.

Chronostratigraphic age: ?Upper Ordovician–Silurian (Llandovery/lower Wenlock).

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 / CISURALIAN			TOURNAISIAN	330	PERMIAN	LOWER PERMIAN / CISURALIAN		
				335					
				340					
		345							
		350							
		355							
		359.2							
		PERMIAN	UPPER PERMIAN / DEVONIAN	FAMENNIAN	360			PERMIAN	UPPER PERMIAN / DEVONIAN
				FRASNIAN	365				
				370					
375									
380									
385									
390									
395									
400									
405									
PERMIAN	LOWER PERMIAN / DEVONIAN	EMSIAN	410	PERMIAN	LOWER PERMIAN / DEVONIAN				
		PRAGIAN	415						
		LOCHKOVIAN	420						
		425							
		430							
		435							
		440							
		443.7							
		445							
		PERMIAN	UPPER PERMIAN / DEVONIAN			LUDFORDIAN / GORSTIAN	450	PERMIAN	UPPER PERMIAN / DEVONIAN
HOMERIAN / SHEINWOOD	455								
TELYCHIAN	460								
AERONIAN	465								
RHUDDANIAN	470								
HIRNANTIAN	475								
480									
485									
488.3									
490									
PERMIAN	UPPER PERMIAN / DEVONIAN	PAIBIAN	495	PERMIAN	UPPER PERMIAN / DEVONIAN				
		495							
		500							
		505							
		510							
		515							
		520							
		525							
		530							
		535							
CAMBRIAN	LOWER CAMBRIAN	540	CAMBRIAN	LOWER CAMBRIAN					
		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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