Raasberg-Formation / Raasberg Formation
(not shown in the ASC 2004)

BERNHARD HUBMANN

Validity: Valid; first description by FLÜGEL & MAURIN (1956: "gelbe Gesteinsserie"), resp. FLÜGEL (1961: "Raasberg-Folge"); formalized by FLÜGEL (2000: p. 41; Raasberg-Formation).

Type area: ÖK50-UTM, map sheet 4223 Weiz (ÖK50-BMN, map sheet 165 Weiz).

Type section: FLÜGEL (2000) selected a type region at Raasberg, east of ÖK50-UTM, map sheet 4223 Weiz (ÖK50-BMN, map sheet 165 Weiz) (N 47°15'01" / E 15°39'37").

Reference section(s): -

Derivation of name: After "Raasberg" (1,009 m), a mountain east of Weiz, approx. 48 km east of Graz.

Synonyms: Gelbe Gesteinsserie (FLÜGEL & MAURIN, 1956); "fragliche Triasserie" (FLÜGEL & MAURIN, 1957a); "triasverdächtige Gesteine" (FLÜGEL & MAURIN, 1957b); partly: Grenzzone (KUNTSCHNIG, 1927).

Lithology: Sericitic quartzites, yellow platy limestones and white to light grey dolostones.

Fossils: Unknown.

Origin, facies: Shallow marin ?

Chronostratigraphic age: Presumably Pragian–Eifelian.

Biostratigraphy: -

Thickness: Up to 500 m.

Lithostratigraphically higher rank unit: Peggau Group.

Lithostratigraphic subdivision: FLÜGEL & MAURIN (1957a) recognized four lithofacial types which were considered as members by FLÜGEL (2000), i.e., Egg Member, Häulerkreuz Member, Lammkogel Member and Stroß Member.
Egg Member: Light grey to white dolomites with local intercalations of quartzites and dolomitic limestones; at least 250 m in thickness reddish-purple to green volcaniclastics within grey to bluish dolostones; about 50 m (up to 200 m) in thickness.
Häulerkreuz Member: Light blue to bluegrey, coarse grained limestones and dolomites, yellow sericitic quartzites and metatuffs; thickness unknown.
Lammkogel Member: Yellow to light grey quartzites and quartzitic slates; 100 to 200 m in thickness.
Stroß Member: White to light reddish dolomites and light grey limestones with cellular dolomites, subordinate greenstones; up to 200 m in thickness.

Underlying unit(s): Crystalline rocks tectonically underlying the Graz Paleozoic.

Overlying unit(s): Schöckel Formation.

Lateral unit(s): -

Geographic distribution: Styria, highland in the surroundings of Graz; ÖK50-BMN, map sheets 134 Passail, 162 Köflach, 163 Voitsberg, 164 Graz, 165 Weiz.

Remarks: CLAR (1933) compared the succession with Lower Devonian sequences of the Rannach Nappe, whereas FLÜGEL & MAURIN (1956, 1957a, b) and H. FLÜGEL (1961, 1975) supposed a possible Mesozoic (?Triassic) age.

Complementary references: -

Schöckel-Formation / Schöckel Formation

BERNHARD HUBMANN

Validity: Valid; first description by CLAR (1874: Schöcklkalk); formalized by FLÜGEL (2000: p. 42; Schöckelkalk-Formation; change of name into Schöckel-Formation by EBNER et al. (2001).

Type area: ÖK50-UTM, map sheet 4229 Graz (ÖK50-BMN, map sheet 164 Graz).

Type section: No type section defined, but FLÜGEL (2000) selected as type region the Schöckel, a mountain north of Graz, ÖK50-UTM, map sheet 4229 Graz (ÖK50-BMN, map sheet 164 Graz) (N 47°11'54" / E 15°27'55").

Reference section(s): -

Derivation of name: After Schöckel (1,445 m), a mountain north of Graz (mind the variations in spelling of the mountain through time, Schöckl vs. Schöckel).

Synonyms: Peggauer Kalk (STANDFEST, 1881); Kalke des Raasberggipfel (MAURIN & FLÜGEL, 1958).

Lithology: Blue-white, mostly well-bedded banded limestones.

Fossils: -

Origin, facies: Presumably offshore shallow environment.

Chronostratigraphic age: Presumably Eifelian–Givetian.

Biostratigraphy: -

Thickness: Several (?) hundreds of meters.

Lithostratigraphically higher rank unit: Peggau Group (FLÜGEL, 2000).

Lithostratigraphic subdivision: -

Underlying unit(s): Schönberg Formation, Raasberg Formation.

Overlying unit(s): -

Lateral unit(s): Hochschlag Formation.

Geographic distribution: Styria, highland in the surroundings of Graz; ÖK50-BMN, map sheets 133 Leoben, 134 Passail, 162 Köflach, 163 Voitsberg, 164 Graz, 165 Weiz.

Remarks: SEELMEIER (1941) discerned three lithological types, grey-blue "semi-metamorphic" limestones, pure white limestones, and white-grey to grey-blue mostly well banded limestones.

Complementary references: EBNER et al. (2000).

Hackensteiner-Formation / Hackensteiner Formation

BERNHARD HUBMANN

Validity: Valid; first description and formalization by GOLLNER et al. (1982: p. 64–69).

Type area: ÖK50-UTM, map sheet 4223 Weiz (ÖK50-BMN, map sheet 134 Passail).

Type section: The type sections between Laufnitzdorf and south of St. Jakob (N 47°08'56" / E 15°23'33") were described by GOLLNER et al. (1982).

Reference section(s): -
Remarks: GOLLNER et al. (1982) distinguished three series within the formation which were re-named and considered as members by FLÜGEL (2000).

Derivation of name: After the farmstead Hackensteiner north of Laufnitzdorf (Frohnleiten).

Synonyms: Partly: Orthocerenkalk (FLÜGEL, 1953a); Folge von Laufnitzdorf (H. FLÜGEL, 1960, 1975).

Lithology: Succession of various fine-grained volcaniclastic rocks, organodetritic limestones and silt- to sandstones.

Fossils: Conodonts; TSCHELAUT in GOLLNER et al. (1982) mentioned in the lower series (basal 30 m of the sequence) various fossils in thin sections (bryozoans, brachiopods, echinoderms, trilobites).

Origin, facies: Pelagic environment of some 10 to 100 m water depth (GOLLNER et al., 1982).

Chronostratigraphic age: Llandovery to Emsian.

Biostratigraphy: *amorphognathoides* Zone–lower *sagitta* Zone.

Thickness: About 350 m.

Lithostratigraphically higher rank unit: Laufnitzdorf Group (FLÜGEL, 2000)

Lithostratigraphic subdivision: FLÜGEL (2000) discerned three members according to the suggestions of GOLLNER et al. (1982).
Oberferler Member: Predominantly argillaceous shales and silt/sandstones, subordinate occurrences of lydites and alkaline volcanoclastics; up to 200 m in thickness.
Rathlosgraben Member: Flaser to nodular limestones, argillaceous shales, Lydites and silt/sandstones; up to 90 m in thickness.
Rothleiten Member: Alkaline volcaniclastics with intercalations of limestones; about 70 m in thickness.

Underlying unit(s): Formations of the Hochschlag and Gschwend Nappes (tectonic contact).

Overlying unit(s): Units of the Kogler Nappe (tectonic contact).

Lateral unit(s): -

Geographic distribution: Styria, highland in the surroundings of Graz; ÖK50-BMN, map sheets 133 Leoben, 134 Passail.

Remarks: -

Complementary references: FLÜGEL & NEUBAUER (1984), HUBMANN & WEBER (2010).

Kehr-Formation / Kehr Formation

BERNHARD HUBMANN

Validity: Valid; description and formalization by FLÜGEL (2000: p. 14; "Kehrer-Vulkanit-Formation"); change of name into Kehr-Formation by EBNER et al. (2000).

Type area: ÖK50-UTM, map sheet 4228 Voitsberg (ÖK50-BMN, map sheet 163 Voitsberg).

Type section: No type section defined, but FLÜGEL (2000) proposed a type region in the municipality area of Kehr, ÖK50-UTM, map sheet 4228 Voitsberg (ÖK50-BMN, map sheet 163 Voitsberg) (N 47°07'38" / E 15°14'34").

Reference section(s): -

Derivation of name: After Kehr (formerly Kher), a small village east of the monastery Rein, approx. 20 km northwest of Graz.

Synonyms: Partly: obere Schiefer (HERITSCH, 1917b); Falbenschiefer (WAAGEN, 1929); untere Schichten von Kher (FLÜGEL & SCHÖNLAUB, 1972b; FLÜGEL & NEUBAUER, 1984); Schichten von Kher (H. FLÜGEL, 1975); vulkanoklastische Schichtfolge des Haritzgrabens (NEUBAUER, 1989).

Lithology: Predominantly alkaline subordinately acidic metavolcanites (tuffs, lavas).

Fossils: Conodonts – one single finding of a graptolite fragment (HIDEN, 1995).

Origin, facies: Open marine environment.

Chronostratigraphic age: Llandovery–Ludlow.

Biostratigraphy: *leintwardinensis* graptolite zone.

Thickness: Probably more than 100 m.

Lithostratigraphically higher rank unit: Reinerspitz Group (FLÜGEL, 2000).

Lithostratigraphic subdivision: -

Underlying unit(s): Unknown (crystalline basement of the Graz Paleozoic ?)

Overlying unit(s): Kötschberg Formation.

Lateral unit(s): -

Geographic distribution: Styria, highland in the surroundings of Graz; ÖK50-BMN, map sheet 163 Voitsberg, 164 Graz.

Remarks: -

Complementary references: HUBMANN & MESSNER (2005).

Kötschberg-Formation / Kötschberg Formation

BERNHARD HUBMANN

Validity: Valid; description and formalization by FLÜGEL (2000: p. 14; "Kötschberger-Formation"); change of name into Kötschberg-Formation by EBNER et al. (2000).

Type area: ÖK50-UTM, map sheet 4229 Graz (ÖK50-BMN, map sheet 164 Graz).

Type section: No type section defined, but FLÜGEL (2000) proposed a type region in the area of the municipality Kötschberg; ÖK50-UTM, map sheet 4229 Graz (ÖK50-BMN, map sheet 164 Graz) (N 47°05'28" / E 15°20'56").

Reference section(s): -

Derivation of name: After Kötschberg near Thal, a small village 12 km west of Graz.

Synonyms: Partly: obere Schiefer (HERITSCH, 1917b); obere Schichten von Kher (FLÜGEL & SCHÖNLAUB, 1972b; FLÜGEL & NEUBAUER, 1984); Schichten von Kher (H. FLÜGEL, 1975); plattige Kalkschiefer (WEBER, 1990).

Lithology: Predominantly limestones, rare dolostones, argillaceous shales and silty shales.

Fossils: Conodonts, orthocon cephalopods, bivalves, corals.

Origin, facies: Pelagic environment.

Chronostratigraphic age: Ludlow–Lochkovian.

Biostratigraphy: *siluricus* to *woschmidti* conodont zones.

Thickness: About 30 m.

Lithostratigraphically higher rank unit: Reinerspitz Group (FLÜGEL, 2000).

Lithostratigraphic subdivision: FLÜGEL (2000) distinguished 4 members:
Eggenfeld Member: Dolomites alternating with fine bedded tuffs; about 10 m in thickness.

Austrian Stratigraphic Chart 2004 - Paleozoic

(sedimentary successions)

Austrian Stratigraphic Commission

ASC

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

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

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