(2,336 m) in the Nock Mountains, in particular the area north of mountain Stangnock, approx. 2 km northeast of Karlbad and 6 km northwest of Turracher Höhe.

Type section: North of mountain Stangnock with exposures covering more than 300 m of the complete section; N 46°56'12" / E 13°47'50".

Reference section(s): -

Derivation of name: After the mountain Stangnock (2,316 m).

Synonyms: Anthrazitformation der Stangalpe; Oberkarbon der Stangalpe; Stangalm-Karbon; Königstuhl-Turrach-Karbon; Königstuhlkarbon; Turracher Karbon (cf. KRAINER, 1989: p. 566).

Lithology: At the base coarse to fine-grained molasse-type sediments of a braided river network composed of quartz-rich polymict conglomerates, sandstones and arenaceous shales.

Fossils: Speciose flora (see FRITZ et al., 1990: p. 154–166).

Origin, facies: Intermontane molasse deposit containing abundant plant remains. The basal part grades upward into a gravel-sandstone facies of a meandering river system. In this sequence in the surroundings of Turracher Höhe meter-thick coal seams occur suggesting an overall humid climate.

Chronostratigraphic age: Kasimovian–Gzhelian (Stephanian), Pennsylvanian, upper Carboniferous.

Biostratigraphy: *Odontopteris cantabrica–Sphenophyllum angustifolium* Zone (Kasimovian–Gzhelian).

Thickness: > 400 m.

Lithostratigraphically higher rank unit: -

Lithostratigraphic subdivision: -

Underlying unit(s): Lower Paleozoic Series of the Stolzalpen Nappe (not shown in the ASC 2004).

Overlying unit(s): Werchzirm Formation.

Lateral unit(s): -

Geographic distribution: In the Gurktal Alps between Turracher Höhe and Flattnitz in the east and the area around the village of Innerkrems in the west.

Remarks: -

Complementary references: -

„Oberkarbon von St. Paul" / Upper Carboniferous of St. Paul

HANS P. SCHÖNLAUB

Validity: Invalid (THIEDIG & KLUSSMANN, 1974: p. 81; THIEDIG et al., 1975: p. 271).

Type area: ÖK50-UTM, map sheet 4109 Sankt Paul im Lavanttal (ÖK50-BMN, map sheet 205 Sankt Paul im Lavanttal), Carinthia (KLEINSCHMIDT et al., 1989).

Type section: -

Reference section(s): -
Remarks: The Carboniferous sequence is exposed in two small outcrops southeast of St. Paul some 500 m east of the church of St. Josef and 200 m northwest of the farmhouse Pum.

Derivation of name: Named after the village of St. Paul east of Völkermarkt in the Lavant Valley.

Synonyms: -

Lithology: Soft greyish shales, greywackes and arkosic shales.

Fossils: Plants (*Sphenophyllum angustifolium, Aphlebia elongata, Pseudomariopteris busqueti* and others; FRITZ et al., 1990).

Origin, facies: Molasse-type sedimentation.

Chronostratigraphic age: Gzhelian (Stephanian)–Asselian.

Biostratigraphy: Based on plant fossils.

Thickness: Unknown.

Lithostratigraphically higher rank unit: -

Lithostratigraphic subdivision: -

Underlying unit(s): Magdalensberg Group, Gurktal Quartzphyllite Complex (tectonic contact).

Overlying unit(s): Werchzirm Formation.

Lateral unit(s): -

Geographic distribution: Small isolated outcrops between St. Paul and the town of St. Veit in eastern Carinthia.

Remarks: -

Complementary references: -

Werchzirm-Formation / Werchzirm Formation

HANS P. SCHÖNLAUB

Validity: Invalid; the term was introduced by SCHWINNER (1931, 1932) at the northwestern margin of the Gurktal Nappe System of Styria.

Type area: ÖK50-UTM, map sheet 3106 Radenthein (ÖK50-BMN, map sheet 183 Radenthein): Werchzirbenalm ("Roter Rain") some 3 km west of the village of Turrach, Styria.

Type section: Northeast directed crest along "Roter Rain" to "Werchzirmkessel". The best outcrops are located between altitudes 2,000 m and 1,950 m (N 46°57'00" / E 13°49'23").

Reference section(s): Another section runs along the crest between the mountains Königstuhl and Karlnock west of Turracher Höhe overlying the Stangnock-Formation (SCHWINNER, 1938; KRAINER, 1987b).

Derivation of name: After Werchzirmalm (today named "Werchzirbenalm") west of the village of Turrach (Styria).

Synonyms: Werchzirmschichten, Freudenberger Schichten, Christofbergschichten, Postvariszische Transgressionsserien, Kontinentaldetritisches Perm (cf. KRAINER, 1984: p. 169, 1987b: p. 52).

Lithology: Red siltstones, mudstones and sandstones with interbedded polymict conglomerates and fanglomerates (Red Beds).

Fossils: Plant remains.

Origin, facies: Debris flows alternating with playa-like sediments (caliche crusts, algal layers) and rhyolitic pyroclastics in the upper part (tuffs and tuffites) suggesting a semiarid and arid climate.

Chronostratigraphic age: Asselian.

Biostratigraphy: Based on plant occurrences at several localities at Christofberg, Ulrichsberg and the surround-

ings of St. Paul (Wunderstätten) an assignment to the *Callipteris conferta* Zone is inferred (Fritz & Krainer, 2007).

Thickness: Between 30 and 50 or even 100 meters (Krainer, 1987b).

Lithostratigraphically higher rank unit: -

Lithostratigraphic subdivision: -

Underlying unit(s): Stangnock Formation and Lower Paleozoic of Magdalensberg Group (tectonic contact).

Overlying unit(s): Gröden Formation.

Lateral unit(s): -

Geographic distribution: Gurktal Alps west of the village of Turrach (northwestern Styria) and central Carinthia between Ulrichsberg in the west and St. Paul in the east (Krainer, 1987b).

Remarks: -

Complementary references: -

Gröden-Formation / Gröden Formation
(description see Carnic Alps and Drau Range)

Grazer Paläozoikum / Graz Paleozoic

The Graz Paleozoic (GP) comprises an outcropping area of approximately 1,250 km^2 resting tectonically on metamorphic Austroalpine units. The GP itself represents a pile of nappes which is overlain unconformably by the Upper Cretaceous Kainach Gosau and by Neogene sediments of the "Styrian Basin" in the south. The nappes consist of different facial developments.

Fritz & Neubauer (1990) discerned a Basal, an Intermediate, and an Upper Nappe Group in which lithological similarities, the tectonic position, and metamorphic overprint of the nappes were considered. This concept of a tectonic tripartite arrangement in the sense of Fritz & Neubauer (1990) is the conceptual base for the lithostratigraphic arrangement shown in the ASC 2004:

1) The Basal Nappe Group (upper Silurian–Lower Devonian) comprises the Schöckel Nappe and the Anger Crystalline Complex. Besides the Alpine (Early to Late Cretaceous) deformation of the Graz Paleozoic in this basal nappe system minor Variscan deformation under upper greenschist facies condition (with rarely occurring amphibolite facies) is detected. The Schöckel Nappe is made up of pre-Devonian rocks (Passail Group, Taschen Formation) and the Devonian Peggau Group. Generally, volcaniclastics dominate the upper Silurian to Lower Devonian, and carbonates the Middle Devonian. Part of the Peggau Group is the Schönberg Formation with Meggen-type lead/zinc-barite Sedex mineralizations (Ebner et al., 2000).

2) The Intermediate Nappe Group (lower Silurian–Upper Devonian) includes the "Laufnitzdorf Nappe" and the "Kalkschiefer Nappe" (Lower to Upper Devonian). Both Nappes occur in different structural levels. The former development contains pelagic limestones, shales and volcaniclastics, the latter limestones and siliciclastics.

3) The Upper Nappe System (upper Silurian–upper Carboniferous) comprises the Rannach- and Hochlantsch Nappes. Both have a similar facial development, especially in the Emsian–Givetian. Successions of the Rannach Nappe are composed of volcaniclastic rocks (Silurian–Lower Devonian; Reinerspitz Group), siliciclastics and carbonates rich in fossils (Lower–Middle Devonian; Rannach Group) of a littoral environment followed by the pelagic Forstkogel Group (Upper Givetian–Serpukhovian) and the shallow marine Dult Group (Bashkirian/?Moskovian) (Hubmann & Messner, 2007; Ebner et al., 2008).

According to a paleogeographical interpretation of the entire Paleozoic succession, the formations of the Rannach- and Hochlantsch Nappes are interpreted to have been deposite nearest to the shore, while the "Laufnitzdorf Facies" represents the most distant from shore. Successions of the Schöckel Nappe occupy an intermediate position in this conception (Hubmann, 1993).

The stratigraphic sequence indicates a sedimentation area changing from a passive continental margin with the continental breakup (alkaline volcanism) to shelf and platform geometries during the Silurian to Devonian time span. Sea-level changes and probably synsedimentary tectonics had affected both, the lithologic development (i.e., alternations of dolostones and limestones) and the formation of stratigraphic gaps and mixed conodont faunas (Ebner et al., 2000, 2008).

Recently, Gasser et al. (2010) published a new structural sketch of the Graz Paleozoic which gets along with only two nappes, a basal one characterized by intensely deformed units which show a penetrative foliation with a pronounced stretching lineation and an upper one comprising less metamorphic sequences. In this conception the lower nappe system consists of sequences of the Laufnitzdorf Facies, the Kalkschiefer Facies (partly) and the Schöckel Facies whereas the upper nappe system comprises the Kalkschiefer Facies (partly), the Rannach Facies and the Hochlantsch Facies.

Taschen-Formation / Taschen Formation

Bernhard Hubmann

Validity: Valid; first description by Schwinner (1925: "Taschenschiefer"); formalized by Flügel (2000: p. 38; Taschen-Schiefer-Formation); change of name into Taschen-Formation by Ebner et al. (2000).

Type area: ÖK50-UTM, map sheet 4223 Weiz (ÖK50-BMN, map sheet 164 Graz).

Type section: Not defined, but Flügel (2000) selected a type region at Taschen, a little village east of Peggau; ÖK50-UTM, map sheet 4223 Weiz, ÖK50-BMN, map sheet 164 Graz (N 47°12'27" / E 15°22'59").

Reference section(s): -
Remarks: Tectonic position of the formation and its relationship to the Rannach Nappe or Schöckel Nappe respectively is not clarified at the moment.

Derivation of name: After "Taschen", an area east of Peggau, approx. 25 km north of Graz.

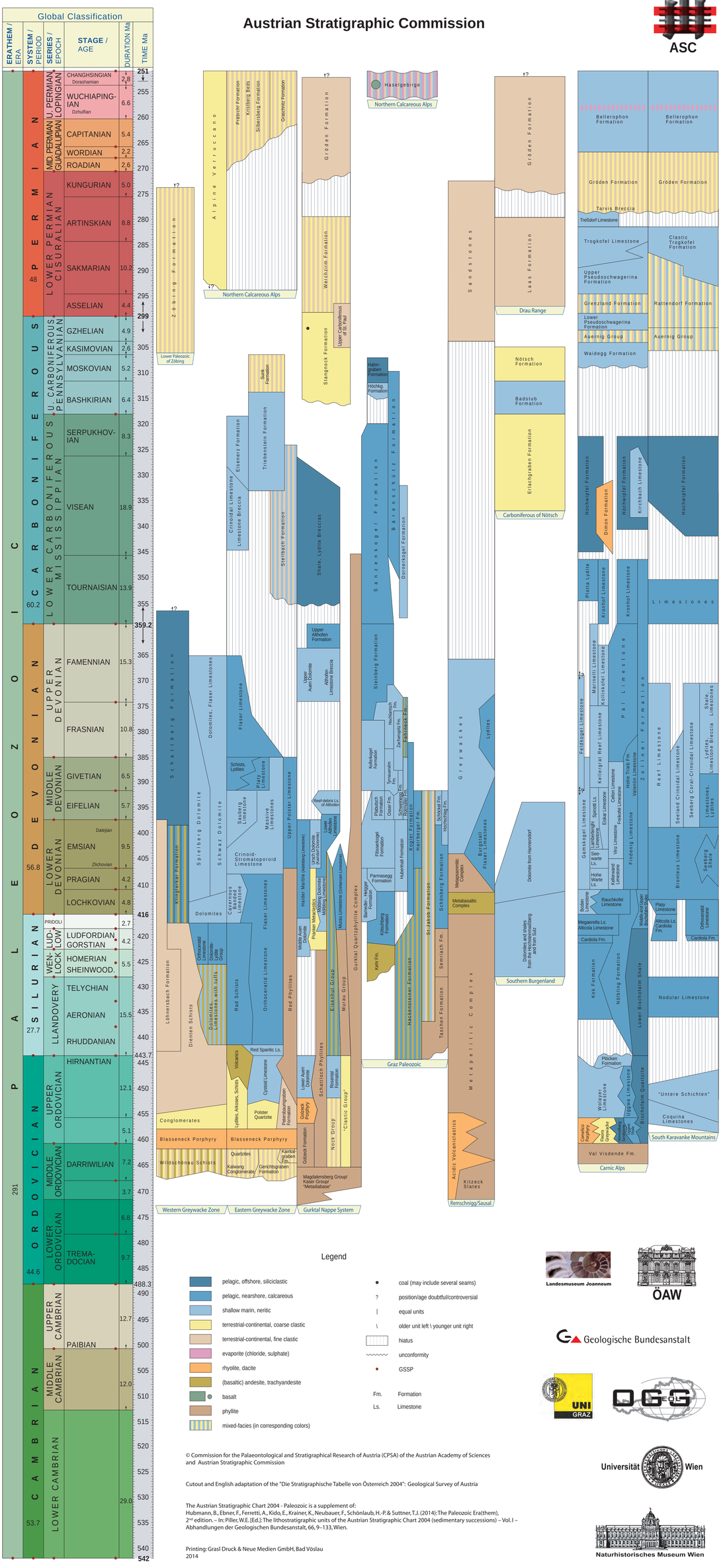
Synonyms: Partly: Semriacher Schiefer (Clar, 1874); obere Schiefer (Heritsch, 1917b); Grünschiefer-Serie (See-

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

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

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