Younger aplites intrusions are present too. These aplites caused contact metamorphism of low metamorphosed sediments of the Upper Carboniferous – Slatvina formation (sensu Vozárová and Vozár 1982). Aplites are connected to shear zone, intruding both Upper Carboniferous metasediments to Lower Permian metaclastics and Lower Carboniferous granitoids.

There are two possible geological scenarios of its intrusive age: Middle Permian or Cretaceous one.

Some $^{40}Ar/^{39}Ar$ data from muscovites point out at the older age than Cretaceous and in the higher temperature steps of $^{40}Ar/^{39}Ar$ analyses, values are very close to Permian age. $^{40}Ar/^{39}Ar$ apparent ages spectra are disturbed and lower than Rb/Sr ages (apatite –muscovite two points "isochrones" – **260–280 Ma**).

The high isotopic characteristics of $^{87}Sr/^{86}Sr$ ratio of apatites (0.7118–0.7249) are very similar to the initial whole-rocks ratios of the granites of the Gemericum Unit.

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Contrasting Magnetic Fabrics in Sedimentary Rocks of the Accretionary Prisms of the Western Carpathians and the Eastern Rheno-Hercynian Zone

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Sediments of accretionary prisms involved in processes of subduction at convergent margins may undergo variegated deformation history. The sediments deposited on the subducting plate may be off-scraped and frontally accreted, partially or entirely thrust beneath the overlying plate, or transferred from the subducting plate to the bottom of the overlying plate via underplating. If the sediment supply exceeds the capacity of the subduction zone, part of the sediment double back and flow up the subduction zone.

The rock deformation history can be investigated using methods of structural analysis among which the anisotropy of magnetic susceptibility (AMS) has the steadily growing importance. This is probably because the sediments of accretionary prisms mostly contain no strain markers and the AMS is one of the most sensitive indicators of strain in rocks. Using modern instruments, the AMS can be reliably measured in rocks exhibiting the degree of AMS as low as 1%.

The magnetic fabrics in sedimentary rocks of the Alpine thrust sheets of the Flysch and Klippen Belts of the West Carpathians range from essentially sedimentary to mostly deformational in origin. The former magnetic fabrics are characterized by virtual parallelism of the magnetic foliations to the bedding and by close relationship of magnetic lineations to the current directions, if observable. These magnetic fabrics are typical of the thrust sheets at both margins of the Flysch Belt. The sheets were probably detached from the wedge relatively early and underwent deformations as rigid bodies (translation and perhaps rotation) without being affected by detectable ductile deformation. The latter magnetic fabrics show significant deflections of the magnetic lineations from the current directions and important deflections of magnetic foliations from the bedding evolving into girdle pattern in magnetic foliation poles. These magnetic fabrics are typical of the central thrust sheets where the magnetic fabric was relatively strongly affected by ductile deformation represented by a combination of simple shear (responsible for overthrust movements) and lateral shortening (mostly bedding-parallel), probably associated with creation and motion of the thrust sheets driven by a push from the rear side. However, the deformation was too weak to give rise to the cleavage.

The Variscan thrust sheets of the Rheno-Hercynian Zone of the E Bohemian Massif, cropping out in the Drahanska vrchovina Hills and the Nizky Jesenik Mts., show very variable magnetic fabrics and deformation fabric elements. In the easternmost areas of both outcrops, the achimetamorphism, ductile deformation and degree of AMS are in general weak; the magnetic fabric is oblate, the magnetic foliation is either parallel to the bedding or tends to create a partial girdle in its poles. The strata create buckle folds of long wavelength whose magnetic fabric can be unfolded geometrically. In the central areas of both outcrops, spaced cleavage and relatively tight buckle folds can be found. Magnetic foliation is still mostly parallel to the bedding, but the magnetic lineation is re-oriented into parallelism to the cleavage/bedding intersection lines. The magnetic fabric of the most folds can be unfolded only partially. In the western areas of the Nizky Jesenik Mts., cleavage folds and very well developed slaty cleavage occur. The degree of AMS is high, the magnetic foliation is parallel to the slaty cleavage and the magnetic lineation is parallel to the cleavage/bedding intersection lines. The magnetic fabric in the folds is homogeneous, the folds cannot be unfolded at all. In places, the slaty cleavage is transposed into the metamorphic schistosity.

Coaxial Magnetic Fabrics in the Basement Rocks of the Western Carpathians: a Remnant of the Variscan Structure within the Alpine Edifice

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Anisotropy of magnetic susceptibility (AMS) is one of the most powerful techniques for investigation of the rock fabric. Modern instruments for its measurement are very sensitive and accurate so that even weakly magnetic and very weakly anisotropic rocks can be measured with sufficient precision despite these rocks may look massive and/or isotropic at the first view. The magnetic fabric of granitic bodies is traditionally interpreted in terms of magma flow, because it primarily originates during the process of emplacement of these rocks into the upper layers of the Earth's crust. However, granitic rocks can be after their intrusion affected by tectonic deformations giving rise to deformational magnetic fabrics superimposed on the primary magnetic fabrics, which is frequent case of the Central Western Carpathians (CWC). The Western Carpathians mountain range creates direct eastern continuation of the Eastern Alps and their present edifice is Alpine in age. The basement components together with Mesozoic cover and nappe complexes were juxtaposed through north-directed thrusting during the Upper Cretaceous. The Hercynian basement within the Alpine-Carpathian orogenic belt was disrupted and sliced into blocks, which were incorporated into the Alpine (nappe and/or terrane) complexes and subsequently variously tilted and uplifted during the Alpine collisional tectonics. This polyorogenic history makes the reconstruction of Hercynian structures rather difficult, but provides excellent exposure of various levels of the Hercynian crust. The Hercynian granitoid rocks occur in all three superunits of the CWC (the Tatricum, Veporicum and Gemericum) in various positions. In the Tatricum, these rocks with surrounding metamorphites (amphibolites, orthogneisses and paragneisses) constitute the backbones of the so-called Core Mountains – horst structures that were finally exhumed during the Alpine orogeny in the Eocene-Miocene period. A large composite granodiorite-tonalite massif, strongly affected by the Alpine tectonics, dominates the Veporicum, and a large hidden granitoid body, penetrating the overlying Early Palaeozoic rocks in the form of apophyses, is observed in the Gemericum. In some Core Mountains of the Western Carpathians, the magnetic fabrics show similar patterns in metamorphic, granitic and covering sedimentary rocks within each Core Mountains, but different orientations between the Core Mountains (Hrouda et al. 2002a, Gregorová et al. 2004). This magnetic fabric is regarded as resulting from ductile deformation associated with regional metamorphism operating during Alpine Upper Cretaceous collision comprising formation and motion of the Central Western Carpathian nappes. During these processes, granites were softened secondarily and could easily undergo ductile deformation.

However, the above magnetic fabric relationship is not valid in all Core Mountains. In some of them, the magnetic fabrics in crystalline rocks are in general non-coaxial with those in cover sediments thus indicating weak or even no effect of the Alpine ductile deformation. As the coaxial magnetic fabrics occur in the centrally located Veporic Superunit of the Central Western Carpathians where the basement was strongly re-activated during collisional burial in a collisional wedge, while the non-coaxial magnetic fabrics occur at the outer margins of the Central Western Carpathians, the magnetic fabric method offers itself as an indicator of the extent of the occurrence of the collisional burial (Hrouda et al. 2002b).