Dextral Shear Zone between Nove Mesto Unit and the Core of Orlica-Snieznik Massif (the Sudetes) – a Variscan Terrane Boundary?

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The Palaeozoic collage of the northeastermost extremity of the Variscan belt exposed in the Sudetes, includes a number of probable suture zones (e.g., in the southern and eastern Karkonosze-Izera massif, around the Góry Sowie massif and along the Stare Mesto shear zone), few of which, however, were so far explicitly interpreted as such. A Variscan suture separating the Saxothuringian zone (terrane) to the NW from the Tepla-Barrandian zone (terrane) to the SE, has been interpreted within the Rudawy Janowickie and south Karkonosze metamorphic complexes (Mazur et al. 1998; Mazur and Aleksandrowski 2001; following earlier concepts of Pin et al. 1988 and Matte et al. 1990). The counterpart of the latter suture seems to be a major shear zone developed in the Orlica Mts along the boundary between the Nove Mesto – Lewin Klodzki phyllite-greenstone complex in the SW (probably representing the Tepla-Barrandian terrane) and the gneissic Orlica-Snieznik and the mica schist Stronie complexes in the NE (probably representing the Moldanubian/Gföhl terrane). Both crustal domains show different structural patterns (Fajst 1976; Dumicz 1998) and their contact is occupied by 1.5 to 5 km wide amphibolite belt intruded by metagabbroic and acid igneous rocks. The amphibolite displays MORB-like geochemical features (Opletal et al. 1990; Floyd et al. 1996). The structural study performed by the present authors revealed that the continuous belt of the Stronie complex mica schists adjacent to the contact from the NE, defines a 1–2 km wide shear zone overprinting and obliterating all earlier fabric elements. This shear zone shows evidence of predominantly dextral shearing along moderately westerly dipping foliation and shallow NW-plunging stretching lineation. The strain intensity decreases both to the NE and SW of the contact. Locally, the rocks show record of younger top-to-SW semi-brittle shearing event associated with extensional collapse. These relationships partly correspond to recent results of Dumicz (1998), who interpreted the discussed contact as located along the ductile-to-brittle normal-displacement Olešnice-Uhrinov shear zone. Our results point to a later reactivation in semi-brittle regime of an earlier, predominantly strike-slip, ductile shear zone along the Olešnice-Uhrinov "fault". The hypothetical Orlica Mts suture zone deserves further structural, petrological and geochronological study which is planned in near future by the present authors.

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Controls on Development of Asymmetric Fining-Upward Megacycles in a Generally Fine-Grained Turbidite System of the Moravice Formation, Moravian-Silesian Culm Basin.

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The Moravian-Silesian Culm basin filled with varied, mainly deep-marine siliciclastic sediments has undergone a large-scale syn- and postsedimenary tectonic evolution in a ocean subduction (remnant basin) to continental collision (foreland basin) related tectonic setting (Kumpera and Martinec 1995), leading to its complexity in the present-day tectonic structure and facies architecture. A detailed field facies- and ichnofacies analysis of an early Upper Viséan turbidite succession of the Moravice Fm.

reveals that in spite of structural complexity and lack of correlation between individual measured sections, some conclusions about depositional environments and sedimentation history may be put forth. From stratigraphical perspective the Moravice Formation can be subdivided in two distinct facies associations reflecting the evolution of its turbidite system in at least two discrete stages.

Facies characteristics of, in particular, basal parts of the Moravice Formation is extremely diverse comprising thick, massive and normally graded conglomerates, pebbly sandstones and pebbly mudstones of facies class A (Mutti and Ricci Lucchi 1972, Pickering et al. 1989), up to several m thick layers of massive sandstones of facies class B, fine- to medium-grained sands with T_a, $T_{a,b}$ and $T_{a,b,c}$ Bouma sequences (facies class C) and laminated siltstones and mudstones of facies D and E. The deposits are organized into n x 10 to n x 100m thick asymmetric fining- and thinning upward cycles composed of coarse-grained facies A, B, C and less frequently D, alternating with volumetrically subordinate successions of facies D and E, interpreted as submarine channel-fill and overbank deposits, respectively. In most extreme cases, chaotic layers of facies F associated with coarse--grained successions, with large outsized intraclasts reaching several m in cross-section (olistoliths) were recently found or reported previously (e.g. by Kumpera 1983). Upwards, this facies association passes gradually into thick, monotonous successions of black mudstones with laminae and thin beds of sharp-based siltstone and fine-grained sandstones (facies E and D) alternating with several tens to several hundreds metres thick sandstone lenses. The sandstone lenses are typically composed of frequently amalgamated, massive to normally graded coarse sandstones to fine- to medium-pebble sized conglomerates (facies B), medium-grained sandstones, frequently with almost perfect $T_{a,b,c,d}$ Bouma sequences and a wealth of sedimentary structures typical of turbidites such as convolute lamination, flute-, tool- and load casts and trace fossils (facies C), and thin beds of massive to normally graded siltstone (facies D). The sandstone lenses are interpreted as sandstone lobe- to lobe fringe deposits alternating with basin-plain deposits in a distal part of the turbidite system.

The scenario as described above, i.e. successions from proximal, channel- to channel margin depositional system passing upward into the lobe – lobe fringe – basin plain depositional system, is repeated at least two times throughout the Moravice Formation. Base of the first, prominent asymmetric megacycle is exposed in a zone running from Domašov nad Bystřicí through Jívová to Hrubá Voda and possibly to the vicinity of Olomouc (Olomouc 1 borehole, Maštera 1998). Base of the second, minor megacycle corresponding to the Brumovice Mbr. is exposed in a zone running from Krnov to the close vicinity of Přerov (Kumpera 1983). Basal parts of each megacycle comprise series of higher-order thinning and fining upward cycles. More, subordinate thinning and fining upward cycles occur throughout the Moravice Formation.

As envisaged from the present facies characteristics and supported with paleocurrent data and clastic provenance data collected both from fine-grained clastics (Hartley and Otava 2001), the Moravice Formation evolved as a longitudinal, fine--grained turbidite system within a remnant / foreland basin, fed predominantly from a southerly point source. However, in our assumption and conformable with the coarse-clastics provenance data (Kumpera 1983), in addition to the northward sediment dispersal the presence of the asymmetric cycles recorded prominent compression pulses due to orogenic loading associated with considerable, lateral coarse sediment fluxes from the subduction / collision complex located to the west.

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Basic and Ultrabasic Rocks at the Bohemicum / Moldanubicum Boundary Along the Central Bohemian Fault

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Intrusive basic rocks of the Neukirchen-Kdyně Massif (Bohemicum) have in general basaltic composition and subalkaline tholeiitic character. Gabbros of the Neukirchen-Kdyně Massif are feldspar cumulates related to their pronounced positive Eu-, Ba- and Sr-anomaly. Diorites and quartz diorites show progressively andesitic to dacitic composition. Amphibolites close to dioritic bodies somewhat farther from the Central Bohemian Fault (CBF) into the Bohemicum have similar geochemistry with intrusive basic rocks and could thus be recognized as "metagabbros" or "gabbroamphibolites". Amphibolites close to CBF in the easternmost extension of amphibolitic massif Hoher Bogen correspond to IAT--ocean floor basalts as reported by Propach and Pfeiffer (1998).

Amphibolites in Moldanubicum, close to CBF have basaltic subalkaline tholeiitic composition and amphibolites from the two-mica gneisses of Královský Hvozd Unit (KHU) exhibit basaltic subalkaline calc-alkaline character. Both are geochemically very