

# The Saxothuringian/Moravosilesian Boundary Duplex Structure in the Fore-Sudetic Block

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Since Suess's (1912) and Cloos's (1922) interpretations it has been admitted that the east-vergent nappe thrust structure define the Variscan tectonic boundary between the two major crustal segments: the West Sudetes (eastern continuation of the Saxothuringian Zone - STZ) and the East Sudetes (the Moravo-Silesian Zone - MSZ) within the SE part of the Fore-Sudetic Block (FSB). Although lithology and tectono-thermal evolutions are different for rocks of the two lithospheric segments their field assignment to the STZ or to the MSZ is often dubious. On this account the boundary between the STZ and the MSZ in the FSB has been located either along the Niemcza Zone (e.g. Scheumann, 1937; Mazur and Puziewicz, 1992) or further east along the differently situated Ramzova thrust (Bederke, 1929; Oberc, 1968; Skácel, 1989). The STZ/MSZ tectonic boundary in the Fore-Sudetic Block (Cymerman and Piasecki, 1994) by analogy to the Moldanubian/Moravian border (Matte et al., 1990; Schulmann, 1990) was regarded a wide simple shear zone developed in the NE-SW dextral transpressional regime. However, both geometrical and kinematic features are only roughly similar because the Fore-Sudetic Block was (by c. 5 km) more deeply eroded than the Sudetes and the remainder of the Bohemian Massif.

The detailed analysis indicates that the STZ/MSZ boundary in the FSB is a structurally complex zone produced in three phases, during which the high-grade STZ rocks were exhumed and juxtaposed with the lower-grade crystalline basement defined with the Devonian metasediments of the MSZ. These phases were: (I) syn-collisional S-vergent thrusting, (II) ductile normal faulting to the SW, and (III) dextral transpressional shearing with the top-to-the-NE movement. The two older phases developed a similar structures within rocks of both segments, while structures of the youngest phase developed only within the western segment up to the east area of the Strzelin-Doboszowice gneisses. The youngest deformational structures occur in the hangingwall. The rocks within the hangingwall were sheared by the dextral NNE-oriented transpressional overprint (see also Cymerman and Piasecki, 1994; Mazur et al., 1995) partitioned into the E/SE-vergent thrusts and the NNE-striking dextral strike-slip faults gradually passing into the oblique-reverse faults along the strike. These structures define duplex horses developed by tectonic transport oriented obliquely to the foreland front. The high-grade and lower-grade rocks were superposed in the form of mappable horses which were stacked obliquely to the NE. The final juxtaposition produced a convergent duplex structure which actually marks the border zone between the STZ and the MSZ (Achramowicz et al., 1997; Achramowicz, 1999). The duplex development has been recorded by: (1) the Niemcza Zone mylonites (sinistral, S-vergent strike-slip at geometrical position of the passive „roof thrust“), (2) eclogite-bearing mica schists of the Nemeza-Kamieniec Ząbkowicki area and by (3) Strzelin-Doboszowice gneissic domain (at geometrical position of the stacked horses). In the south the floor thrust is hidden but the lateral ramp crops out along the western margin of the Nidźwiedz amphibolite body (uppermost footwall sequence) in a c.100 m wide zone of serpentinites and talc-chlorite schists (mylonite). In the Strzelin Hills area the du-

plex changes its geometry. The NNE foreland-vergent oblique-reverse fault system created the Przeworno elevation (Oberc, 1966), to the north of this structure the S/SE-vergent backthrust system developed. Transpressional regime produced the STZ/MSZ crustal duplex boundary in the FSB during the Early Carboniferous. This geotectonic process ceased during the older phase of emplacement of the Hercynian granitoids; in the Strzelin region at 347-330 Ma (Oberc-Dziedzic, 1998; Puziewicz and Oberc-Dziedzic, 1995) and in the Niemcza Zone at 342-332 Ma (Oliver et al., 1993; Steltenpohl et al., 1993; Mazur et al., 1995).

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