

Character of the Contact between the Saxothuringian and Teplá-Barrandian Unit

Bedřich MLČOCH

Czech Geological Survey, Klárov 3, 118 21 Praha 1, Czech Republic

New information was obtained on the character of the contact between the Saxothuringian (SU) and Teplá -Barrandian (TBU) units in the area between Karlovy Vary and Litoměřice in relation to the construction of elevation model of the crystalline basement (Mlčoch ed. 2001). This contact between the two regional units is usually denominated as the Litoměřice deep fault, identified with the trace of sharp density boundary between the gravity high of the TBU and gravity low of the SU (Šťovíčková, 1973). The course of the Litoměřice deep fault is identified with the surface traces of the České Středohoří Fault and Střezov Fault (Malkovský, 1977). It is clear now, with respect to new data of the digital elevation model of the crystalline basement, that the contact of the SU and TBU is located near the edges of the fault escarpments of the České Středohoří and Střezov faults. In detail, this density boundary is situated up to 8 km to the NW of these faults. This means that the TBU must dip below the SU.

A relatively narrow zone of metamorphism-contrasting sequences was determined on both sides of the contact. The succession granulite–orthogneiss–mica shist/paragneiss–phyllite/metabasite was established at the SE border of the SU at several localities between Doupov and Litoměřice. Some previously known phyllite outcrops were usually considered as Lower Palaeozoic, belonging to the SU. One of them was described from the Ohře River valley by Sattran and Váně (1964), actually from the bottom of the Nechanice Reservoir. A similar succession is also developed in the Porta Bohemica area near Litoměřice, and it is more probable that phyllites and amphibolites exposed here belong to the SU and not to the TBU, as considered by Poubová (1962).

Progressive metamorphic zoning of the Upper Proterozoic rocks along the margin of the TBU was studied by Cháb and Žáček (1994) in the Teplá Upland near the contact with the Mariánské Lázně Complex (MLC). According to Žáček in Mlčoch ed. (2001) the samples from boreholes reaching the basement of Upper Palaeozoic basins S of the Střezov and České Středohoří faults are petrologically comparable with rocks from this area. This means that the metamorphic zones determined in the Teplá Upland can be traced along a large part of the margin of the TBU.

The gravity high in the area of the Doupovské hory Mts. and along the Střezov Fault is related, apart from the influ-

ence of Tertiary volcanics, with basic and ultrabasic rocks of the basement. In this area, the unit composed of amphibolites, eclogites, serpentines etc., can be compared with the MLC. The extent of this unit, located between the SU and TBU and coinciding with a gravity high, was documented by one outcrop, 5 deep boreholes and xenoliths in volcanics. It seems that the continuation of the elongated gravity high in the direction to Litoměřice could be related to high-density rocks belonging to the TBU. This conclusion is supported by the data from several deep boreholes.

The HP/HT sequences of the SE margin of the SU can be correlated with the same crustal nappes in the central part of the Krušné hory Mts. described, e.g., by Konopásek et al. (2001). Phyllites and metabasites, probably of Lower Palaeozoic age, can be compared with similar rocks of Zaunhaus-Rehefeld block, overlying more intensively metamorphosed rocks on the W margin of the Teplice rhyolite body. The SE margin of the SU could thus represent a root zone of nappes described from the central part of the Krušné hory Mts.

References

- KONOPÁSEK J., SCHULMANN K. and LEXA O., 2001. Structural evolution of the central part of the Krušné hory (Erzgebirge) Mountains in Czech Republic—evidence for changing stress regime during Variscan compression. *J.Struct. Geol.*, 23: 1375-1392.
- MALKOVSKÝ M., 1977. Důležité zlomy platformního pokryvu severní části Českého masívu. *Výzk. Práce Ústř. Úst. geol.*, 14, 30 p.
- MLČOCH B. (Editor), 2001. Výzkum krystalinických formací v hlubokých strukturách podloží Doupovského komplexu a jeho širšího okolí. MS Archiv ČGS. Praha.
- POUBOVÁ M., 1963. Krystalinikum Opárenského údolí a České brány. *Sbor. Geol. Věd, Ř. G*, 2: 79-99.
- SATTRAN V. and VÁNĚ M., 1964. Fylitová série s metabazity na východním okraji oháreckého krystalinika u Kadaně. *Čas. Mineral. Geol.*, 44: 51-78.
- ŠŤOVÍČKOVÁ N., 1973. Hlubinná zlomová tektonika a její vztah k endogenním geologickým procesům. Academia, 198 p. Praha.