

References

- Blundell, D. – Freman, R. – Mueller, St. (eds, 1992): A continent revealed. The European Geotraverse. 275 pp, (Cambridge University Press)
 Ziegler, P.A. (1989): Evolution of Laurussia. A study in Late Paleozoic Plate Tectonics. 102 pp, (Kluwer Academic Publishers)

METAMORPHIC RIFT BASALTS AND DISMEMBERED OPHIOLITES OF AN EARLY PALEOZOIC OCEAN IN THE SOUTHERN BOHEMIAN MASSIF, AUSTRIA

H.P. STEYRER¹, F. FINGER²

¹ Institut für Geologie und Paläontologie

² Institut für Mineralogie, Universität Salzburg, Hellbrunner Straße 34, A-5020 Salzburg, Austria

Several types of metabasites have been recognized in the different horizons of the thick Variscan nappe pile of the southern Bohemian Massif (Steyrer and Finger 1992):

1. Remnants of alkaline to subalkaline rift basalts occur as strongly deformed dikes and dikeswarms in Cadomian and Pre-Cadomian basement (i.e. in the Dobra, Spitz and Bittesch Gneiss).
2. Chemically similar is a group of amphibolites which forms layers (basalt flows or sills) in association with shelf sediments in the Drosendorf unit. One of these amphibolites was dated by Friedl et al. (1993) at 358±6 Ma (protolith age).
3. An assembly of MORB-type amphibolites, gabbros and ultrabasic rocks in the RaabsMeisling unit can be interpreted as a dismembered ophiolite complex.
4. Amphibolites at the basis of the Gföhl unit are chemically quite variable, sometimes of the OIB type, but mostly of the MORB-type, some possibly display a minor influx of a subduction modified mantle source.

The regional distribution of the different types of metabasalts is consistent with the following tectonic model (see Figs.1 and 2).

Panafrican continental crust (represented by the Moravo-Silesian terrane and the Moldanubian Dobra and Spitz gneiss) underwent rifting in the Early Paleozoic and a passive plate margin developed (Drosendorf unit) – see Fig.1 b.

The rift system enlarged to an oceanic stage (Raabs-Meisling ophiolites).

The ocean closed due to subduction below a Variscan active continental margin terrane. A tectonic melange of rocks, including various types of metabasalts, were mixed together in this subduction zone (Gföhl unit).

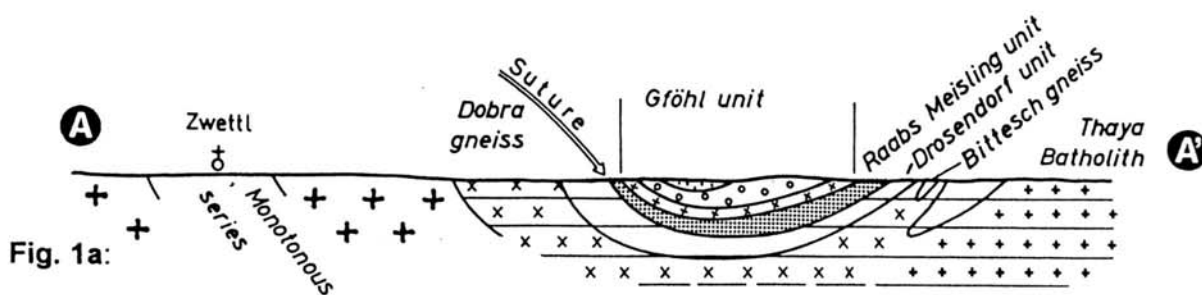


Fig. 1a:

E-W section across the Southern Bohemian Massif (slightly modified after Matura 1977). Symbols as in Fig.2.

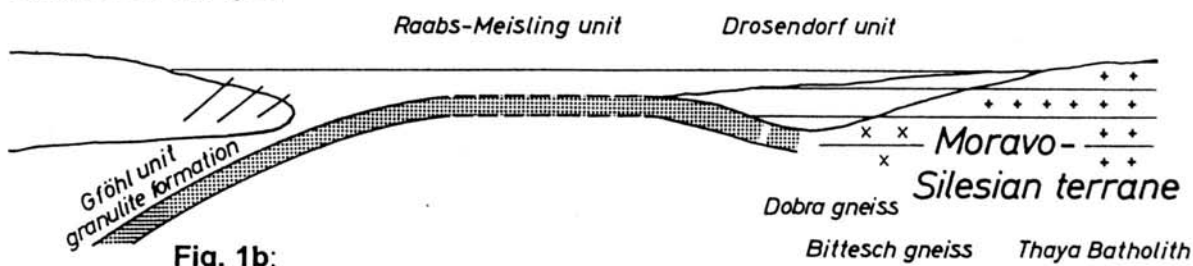


Fig. 1b:

The inferred geological situation prior to the Variscan collision (Finger and Steyrer 1994)

The Gföhl unit overrode the Moravo-Silesian terrane (with the Drosendorf unit at its margin) during the Variscan collision event at ca. 340 Ma (Friedl et al. 1993). The ophiolites of the Raabs-Meisling unit mark the former oceanic suture.

Fig. 2: Tectonic sketch map of the Southern Bohemian Massif (slightly modified after Thiele 1984).

