



Tectonics

## An Andean type Palaeozoic convergence in the Bohemian Massif

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### Abstract

The geological inventory of the Variscan Bohemian Massif can be summarized as a result of Early Devonian subduction of the Saxothuringian ocean of unknown size underneath the eastern continental plate represented by the present-day Teplá-Barrandian and Moldanubian domains. During mid-Devonian, the Saxothuringian passive margin sequences and relics of Ordovician oceanic crust have been obducted over the Saxothuringian basement in conjunction with extrusion of the Teplá-Barrandian middle crust along the so-called Teplá suture zone. This event was connected with the development of the magmatic arc further east, together with a fore-arc basin on the Teplá-Barrandian crust. The back-arc region – the future Moldanubian zone – was affected by lithospheric thinning which marginally affected also the eastern Brunia continental crust. The subduction stage was followed by a collisional event caused by the arrival of the Saxothuringian continental crust that was associated with crustal thickening and the development of the orogenic root system in the magmatic arc and back-arc region of the orogen. The thickening was associated with depression of the Moho and the flux of the Saxothuringian felsic crust into the root area. Originally subhorizontal anisotropy in the root zone was subsequently folded by crustal-scale cusp folds in front of the Brunia backstop. During the Viséan, the Brunia continent indented the thickened crustal root, resulting in the root's massive shortening causing vertical extrusion of the orogenic lower crust, which changed to a horizontal viscous channel flow of extruded lower crustal material in the mid- to supra-crustal levels. Hot orogenic lower crustal rocks were extruded: (1) in a narrow channel parallel to the former Teplá suture surface; (2) in the central part of the root zone in the form of large scale antiformal structure; and (3) in form of hot fold nappe over the Brunia promontory, where it produced Barrovian metamorphism and subsequent imbrications of its upper part. The extruded deeper parts of the orogenic root reached the surface, which soon thereafter resulted in the sedimentation of lower-crustal rocks pebbles in the thick foreland Culm basin on the stable part of the Brunia continent. Finally, during the Westfalian, the foreland Culm wedge was involved into imbricated nappe stack together with basement and orogenic channel flow nappes. *To cite this article: K. Schulmann et al., C. R. Geoscience 341 (2009).*

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### Résumé

**Convergence paléozoïque de type Andin dans le Massif de Bohême.** Le Massif varisque de Bohême est le résultat de la subduction, au Dévonien supérieur, de l'océan Saxothuringien sous la plaque continentale représentée à l'est par les zones actuelles

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