A combination of all those data demonstrates that lower crustal levels are exposed in the S (Nebelstein) than in the N (Hirschenschlag). This evidence corresponds very well with geophysical data (HEINZ & SEIBERL, 1994; HÜBL et al., 1994) and is probably due to large scale tilting of the southern Moldanubian area.

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METAMORPHISM AT THE NORTHERN PART OF THE MORAVIAN ZONE OF THE THAYA WINDOW: GEOTECTONICAL IMPLICATIONS

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Inverted metamorphic zonation in the nappes of Moravian zone of the Thaya dome is characterized by 1) kyanite and sillimanite zones in the upper thrust sheet (Bíteš nappe), 2) staurolite zone in the lower thrust slice (Pleissing nappe) and the upper part of the parautochthonous unit (Therasburg formation) and by 3) garnet zone in the rest of the parautochthonous domain. This anomalous inverted metamorphic gradient is marked by temperature and pressure difference between the top and the base of the stack reaching about 150 °C and 2 - 3 kbars for the thickness 5 - 6 km of continental crust. This type of Barrovian thrust related metamorphism is well known from other collisional zones, e.g. the Himalayas and the French Massif Central. It is commonly interpreted in terms of overthrusting of a hot crystalline slab over cold basement rocks (hot iron effect) or as a result of stacking of previously metamorphosed crystalline sheets.

One dimensional thermal model was worked out for Moravian zone introducing the thickness of individual sheets, calculated P and T data and displacement rate characteristic for viscous deformation of continental crust. It is shown that conductive heat from the Moldanubian hot slab is not sufficient to perturb continental geotherm and produce inverse metamorphic series. The Barrovian metamorphism marked by normal metamorphic zonation originated during slow underthrusting of the Brunovistulian basement while the inversion of isogrades originated later during rapid exhumation along syn- to post-metamorphic mylonite zones at the bases of individual nappes.

THE DEEP STRUCTURE OF THE BOHEMIAN MASSIF IN THE CONTEMPORANEOUS EROSION LEVEL

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There are many outstanding differences between the Hercynian, crystalline units of the Bohemian Massif in the contemporaneous erosion level, well documented by geological, petrological and sedimentological data. The relicts of the pre-Hercynian, most probably Cadomian, erosion level determinate the location of deeper levels in the WNW part of the Erzgebirge Mountains (Freiberg-Ústí n.L.) and upper parts in ESE (the Fichtelgebirge). The boundary of this development is situated on the Ohře fault zone. In the crystalline units of the Bohemian Massif core (Moldanubicum, Barrandian) the relicts of the post-Hercynian erosion level are predominant, because of a strong uplift during the closing time of Hercynian orogeny, in south part of the Bohemian Massif especially. A difference in the erosion level between the Elbe fault zone and Donau fault zone is more than 12 km in the depth of crystalline units. Corresponding differences in the contemporaneous erosion level are displayed by units in the north of the Bohemian Massif between Odra lineament and Elbe fault zone and in the south, between the Donau fault zone and Insubric lineament in the basement of the Alps. By this way originated an imbricated structure of the Bohemian Massif. This is caused probably by subduction of the Larusia under Gondwana and by block desintegration of the Hercynian orogenic belt during the closing of Hercynian orogeny.

In the east of the Bohemian Massif the depth of erosion level is increasing from east to west (DVOŘÁK, 1993) in the Paleozoic units, but the relicts of Postcadomian erosion level are traceable, too. Therefore the knowledge of the tendencies in erosion level is important for paleogeography (eg. discussion on the origin of felspars in Permo-Carboniferous greywackes), for metallogeny, and for interpretation of deep seismic sounding and localisation of scientific drill holes.