are less, so that only about 50 km of continental crustal shortening and 4 km of rebound occurred in the Western Carpathians.

Analysis of deflection, topographic and gravity data illustrate that the lithosphere in the Western Carpathians behaves elastically and flexural bulge of topography in foreland can be described in terms of the flexure of an elastic lithosphere acted upon by a vertical force and a bending moment. The Western Carpathian fold belt is characterized by a positive - negative anomaly "couple", as in the case of the Alps and the Appalachians. For the determination of the effective elastic plate thickness and effective flexural rigidity of the continental lithosphere beneath the Western Carpathians thin elastic plate theory was used. The elastic thickness varies from 24 km to 35 km. It seems to be that the origin of lithosphere deflection is the result of both, surface and subsurface loading. A long-wavelength asymmetric gravity low is associated with the flexure basin and/or in other words with the basement deformation of the passive margin of the European underthrusting plate. The gravity high that is unrelated to the topographic relief and surface geology has to be associated with the burried loads.

This suggestion is also supported by some lithospheric cross sections. The gravity modells predicts that the depth to Moho progressively increases from the foreland to the Inner Western Carpathians units. In fact, the maximum depth to Moho is in between the thrust front and the obducted crustal block (subsurface load). Towards the Pannonian Basin the Moho shallows. The crustal thinnning of the underriding plate beneath the flysch nappes is interpreted as a remnant of crustal thinning along the Mesozoic passive continental margin of Europe. Double crustal and lithosphere thinning is associated with Pannonian Basin extension. Note that shallowing lithosphere/astenosphere boundary has propagated beyond the Carpathians into the European Platform. But crustal thinning appears to be confined to the Carpathian interior, so that crustal structure in the Eastern Alps and Outer Carpathians is a remnant of the earlier collision orogen.

PALEOGEOGRAPHIC CONTROL OF GEOTHERMAL CAUSED VARIABILITY IN A LITHOSPHERE SECTION

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At the bottom of the lithosphere the temperature is close to 1200 °C. The isostatic equilibrium is consistent with the normal geothermal situation. But anomalous geothermal conditions were caused by the alpidic metamorphism and tectonics. Anomalous geothermal fields cross the alpidic front. The paleoisotherms of the Bohemian Massif should go up in these cases. The Bohemian Massif gets isostatic uplifts in these times of melting of the barysphere.

In the northern parts of the section we know sea level changes in the Lusatian lignite region, corresponding to the alpidic movements.

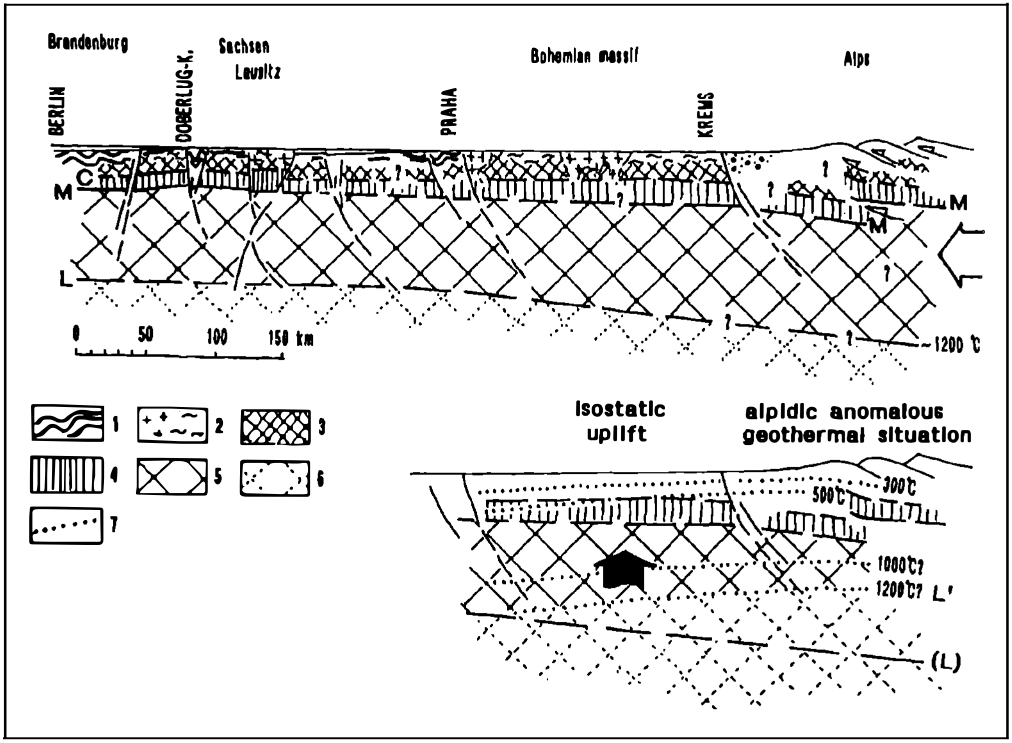

Fig. 1: Legend: 1 - Palaeozoic, Upper Proterozoic, 2 - crystalline, 3 - Upper crust, 4 - Lower crust, 5 - solid Upper mantle, 6 - asthenoshere, 7 - isotherm

THE YOUNGEST VARISCAN MAGMATIC ROCKS IN THE SOUTHERN PART OF THE BOHEMIAN MASSIF - EXAMPLE "HOMOLKA" GRANITE

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The last episode of Variscan granitoid magmatism in the southern part of the Bohemian Massif is documented by intrusions of felsic subvolcanic dykes in N-S trending zones of extensional tectonics followed by intrusions of strongly differentiated leucocratic granites. All these granitic rocks are enriched in F, Rb, Sn and/or