and Poland is suggested in the presented poster. The effect of this Cadomic unit on final shape of European Variscides (especially in the S and E margin of the Bohemian Massif) as well as on the shape of the Carpathian arc seems to be obvious. In addition, Tomek (1996) proposes a hypothesis that a different rheology of the Variscan Europe and the Cadomic Brunovistulicum might cause a different deformation history of the Eastern and Western Alps.

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The Influnce of Carpathian Nappes on Tectonic Structures of the Czech Part of Upper Silesian Coal Basin

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The Upper Silesian Coal Basin (USCB) is situated immediately in the foreland of Outer Carpathian nappes. Its southernmost part forms a tectonic base of those nappes (Subsilesian Unit). The basin forms a part of Variscian basement which was influenced by the load of sediments of Carpathian nappes and by tectonic movement of an accretional wedge during the period of Alpine folding.

In this manner, the subequatorial systems of Variscian faults (of direction ENE-WSW, i. e. fault-systems of Bludovice graben, Janovice graben etc.) were rejuvenated. The movement of Alpine nappes over the basement, in connection with the displacement of the rigid Epihercynian platform (Brunovistulician), initiated systematically the tilting of core segments on the autochthon flexure along the above-mentioned fault systems. This movement could have also evocated the rise of new faults of the second or third order in the USCB.

The Dětmarovice shear zone of subequatorial direction (Grygar et al. 1989) is dominant in the north of the Czech part of USCB. It connects the west of Orlová-structure with the fault systems of the same direction in the western part of USCB and continues as a peripheral fault of Jeseníky as far as the region Opava. The intrusions of neovolcanites and the occurrence of mineral water rich in CO_2 (Dopita et al. 1999) along this regional tectonic zone is an evidence of the Neoidic movement there.

We can observe the tilting in the subequatorial fault zone – – the Bludovice graben analogous to the movement in the Dětmarovice shear zone. The Bludovice graben is most intensively rejuvenated structure in the Czech part of USCB with the exception of some faults immediately under the Carpathian nappes. The results of the morpho-structural analysis carried out so far by Grygar and Jelínek (2000) support this conclusion. The deep tectonic gash is a consequence of a postvariscian erosion. According to Jurková (1971 in Dopita et al. 1997), the paleorelief was formed prior to the Carpathian (mainly at the turn of Carpathian and the Upper Badenian) after the overfault of the Styrian nappe. That erosion was affecting mainly regions of the Ostrava-Karviná ridge and the Příbor–Těšín ridge. The ridges separate the above-mentioned tectonic zones. We cannot agree with the opinion (Dopita et al. 1997) that these structures were formed independently of the structural plan of epivariscian platform. The connection with Variscian fault structures is evident.

It is interesting, that in the Czech part of USCB the faults of NW-SE direction (Sudety structures – dominant in the Bohemian Masiff) occurred sporadically, except of some faults of second order in the Paskov mine (Welser 1998).

That is why we consider the rejuvenation of the fault systems of NNW-SSE, N-S directions occurring between Albrechtice fault and Těšín fault to be of major importance. We can recognised "a copy" of the Variscian Karviná graben in the Alpine structural level too. The zone is morphologicaly very distinct in the Beskydy Mts. georelief.

The above-mentioned structures were in position of radial--tensile faults due to a stress field in the foreland of Carpathian nappes. That is why we argue that these structures "opened" and contributed to the present tectonic structure of USCB.

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Alpine Rejuvenation of Epi-Hercynian Foreland – the Complex Morphostructural and Tectonic Analysis (Moravosilesian Region, Bohemian Massif)

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Morphostructural and deformation analysis of the Alpine and Hercynian orogenic belts contact zone in Moravosilesian region is based on the analysis of digital terrain models (DTM), comparison with structure maps and structure field mapping (paleostress and brittle deformation analysis).

The DTM models of the studdied area, based on satellite data and detailed digitalization of the topographic maps 1: 25,000 scale, as well as 3D-digital models of other subsurface structures (e.g., pre-Hercynian crystalline basement, buried pre-Alpine paleorelief, etc.) were compiled using Surfer 7.0, ArcInfo and Arc View GIS 3D Analyst visualization capability (Fig. 1). This was done for the Variscan foredeep (Nízký Jeseník Mts.) together with coal-bearing molasses (Upper Silesian Coal Basin) and Alpine Outer Carpathian Nappes.

Morphostructures of the pre-Alpine autochthon induced tectonic pattern, kinematics and deformation development of the Alpine Subsilesian and Silesian nappes. Epi-Hercynian basement (Brunovistulicum with its Palaeozoic cover) was simultaneously modified by accreted Alpine nappes. This was a result of tectonic loading by Alpine nappes. Moderate, however significant, tilting of epi-Hercynian crust blocks could be recognized along faults delimiting subequatorial pre-Alpine Dětmarovice and Bludovice grabens. This crust segment tilting was related to pre-Alpine (Brunovistulian) foreland brittle lithosphere flexure

Fig. 1. Principle scheme of the brittle lithosphere (Brunovistulian foreland) break-up on subequatorial fault systems and evoked block tilting due to tectonic loading by Outer Carpathian nappes. Lower schematic profile corresponds to interpretation of the situation, presented on the 3D digital terrain model of buried pre-Alpine paleoreliéf with geological map drift – – upper DTM model.