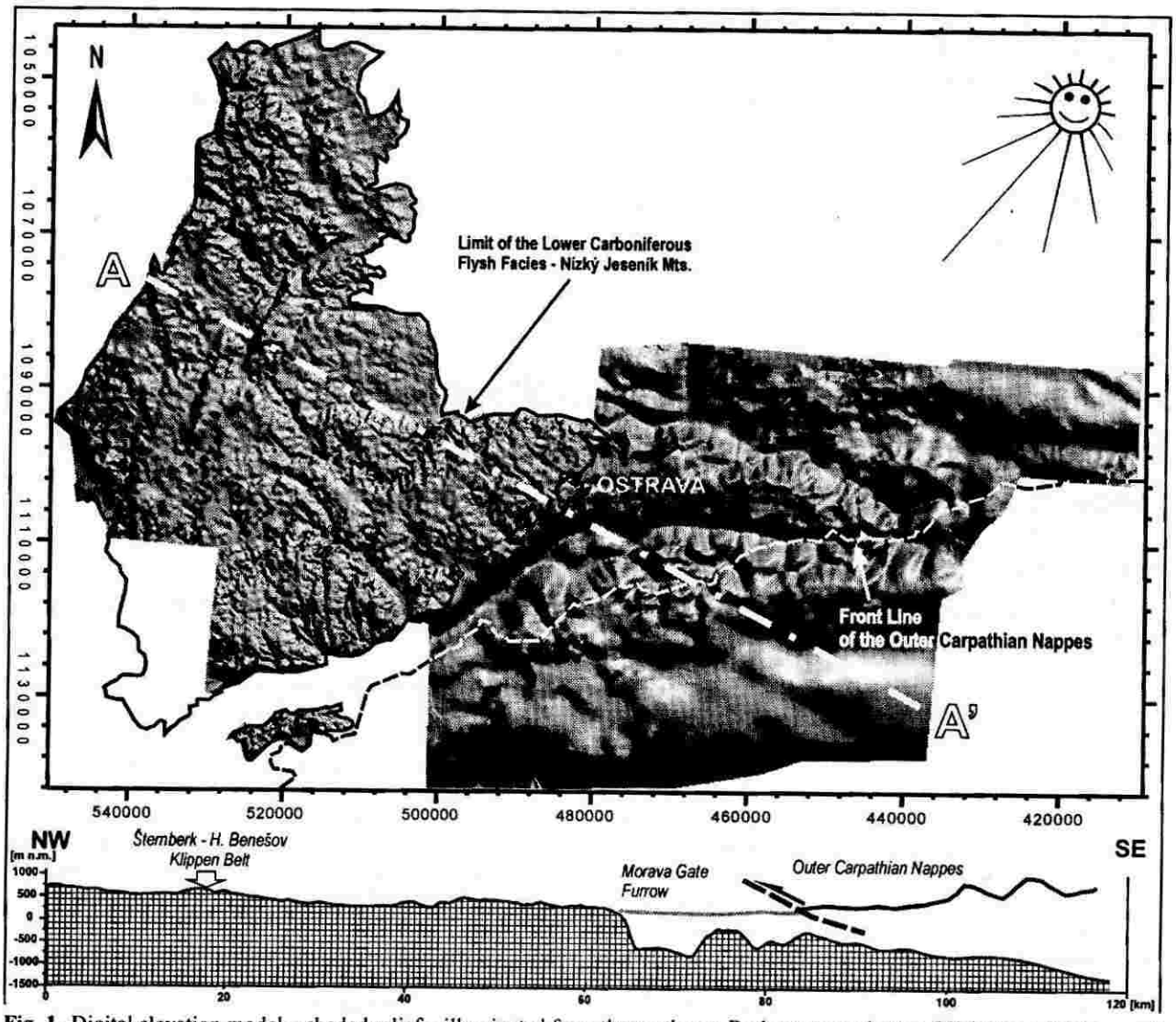

Fig. 1. Digital elevation model – shaded relief – illuminated from the northeast. Both uncovered areas (Nízký Jeseník Mts. area) and areas of the Alpine foreland buried beneath Outer Carpathian nappes (Beskydy Mts.) are displayed. Dominant role of the subequatorial morphostructures, intimately related to Variscan tectonic zones of the Brunovistulicum and its Paleozoic cover, is evident in the buried area. Morphostructural cross-section (lower figure) corresponds to section A–A' on the DEM.

Fault-propagation Folds and Thrust Structures of the Apical Domain of the Variscan Accretionary Wedge (Moravosilesian Zone, Bohemian Massif)

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Complex structural and paleostress studies along eastern apical domain of the Moravosilesian Zone in the flysch foredeep (Hradec–Kyjovice Formation) and coal-bearing molasse of the Upper Silesian Basin were carried out. We also continue in comparative field structural mapping on the Devonian limestone facies in area of the Malinik Horst.

Three progressive deformational stages can be defined:

1. Intraformational bedding slip and detachment thrusting pro-

moted by high layer (bedding) anisotropy of the rhythmic (flysch foredeep) or cyclic sediments (paralic molasse) represent the first deformational stage. A similar role filled intraformational and lithological inhomogeneities (carbonate versus flysch facies, sandstones beds versus coal seams etc.). Slickensides on the bedding planes and intrafolial faults indicate WNW–ESE to NW–SE compression and east-southeastward thrusting. The known easternmost limits of these deformations reach to the eastern margin of the Karviná subbasin (Grygar et al. 1989, 1998; Koníček and Ptáček 1999, etc.). Any tenth meters thick thrust shear zones with intensive ductile mylonitisation corresponding to this phase were observed in the Devonian limestones in the area of Malinĺk Horst structure.

2. Tectonic ramping and fault-bent folds represent products of the next progressive stage. The main fold system developed, among other very stable from strike point of view (NNE–SSW). Absolutely prevailing asymmetry (vergency) of this folding is also east-southeastward. This is linked to the next progressive activity of the main, so-called "Moravosilesian" thrust system. In the Upper Silesian Basin, these thrusts display statistically conjugated "bi-vergent" (flower-like) geometries, linked to progressive compression. This back-thrusting is, however, mostly limited only to the western margin of the Ostrava subbasin.
3. Sub-equatorial dextral transform shear zones (mainly of transtensional character) were activated due to oblique collision with the NE–SW-striking Brunovistulian foreland. In the global strain ellipsoid, the above mentioned zones correspond to synthetic (Riedel) R-shears. A conjugate transtensional NW–SE-striking system (T-faults and/or R'-shears) is associated with this system. This stage corresponds to the latest phase of the Variscan ENE–WSW-oriented stretching (orogenic gravitational collapse).

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Structures of the Moravian Karst in the Cave System of the Punkva River and its Tributaries: Relations to Karst Processes

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The cave system of the Punkva River is situated in the northern part of the Moravian Karst. It comprises 8 caves of the total length of more than 30 km including the famous Amateur Cave (Amatérská jeskyně) and the Punkva Cave (Punkevní jeskyně). This part of the Moravian Karst is composed of thick-bedded limestones of the Lažánky Member (dark) and Vilémovice Member (light gray) of the Macocha Formation (Givetian) accompanied by massive coral reefs.

The study of structural elements may reveal new aspects of the view on karst processes. Geomorphology as well as hydrography of the Moravian Karst area are strongly influenced by structural pattern of the region. Limestone dissolution in the N of the Moravian Karst is clearly controlled by the presence of tectonic zones.

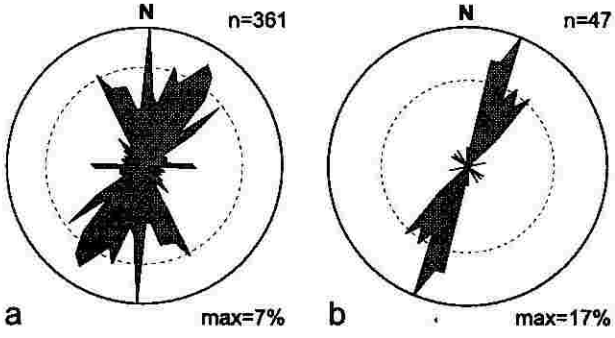

Fig. 1. Correlation between azimuthal orientation of corridors (a) and cleavage (b) in the Amateur Cave.

Bedding, stylolites, cleavage, faults, calcite veins, joints and different kinds of tensional structures were described in the cave system. The most common structure is bedding, often accompanied by tooth-shaped oscillating curves of stylolites which are set of by accumulation of dark insoluble rest. The bedding is usually flat and folded by large, open, NE–SW-trending folds with axes gently plunging to the NE.

The most important structure is non-penetrative cleavage, defined as a planar structure developed during the Variscan Orogeny in the direction perpendicular to the compression. Generally, the intensity of the cleavage increases towards both the eastern and western margins of the Moravian Karst. Cleavage is represented here by mylonite zones dipping steeply NW. Strike-slip movements along cleavage planes are locally documented by the deformation of corals, brachiopods or amphipora fossils.

A strikingly good correlation was found between the orientation of cleavage planes and directions of cave corridors (Fig. 1); hence, the cleavage seems to be the most important structure which, together with bedding, predisposes the main karst corridors. Development of local karst phenomena such as domes or branching of corridors is influenced by the existence of faults and large joints.