Structural Investigation of the Paleozoic of the Drahany Upland, Moravia

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The Drahany Upland represents the easternmost part of the Rhenohercynian Belt of the European Variscides. The Drahany Upland is build of a flysch sequence of Lower Carboniferous age, i.e. shale, greywackes and conglomerates, and a preflysch sequence of Devonian to Lower Carboniferous age, i.e. spilites, carbonates and shales. An isolated occurrence of Silurian shales was found near the village of Stínava in the central part of Drahany Upland.

A complex re-evaluation of the compass field data (Dvoøák 1965, Chadima 1998) was carried out. The stereoplots of the poles to the bedding planes were drawn, and the principal directions (p-circles and p-poles) calculated for number of different segments of the area using the SpheriStat 2.0. program. The Down-plunging method (Suppe 1985, Chapter 2) was used to construct a number of different cross-sections and to determine the large-scale structure of the area.

The nature of the large-scale folds in each of the individual segments of the Drahany Upland can be described as cylindrical. Fold axes generally trend NNE-SSW, plunge directions differ in various segment of the area.

In the southern segment of the Drahany Upland the cylindricity axis plunges slightly to the NNE causing the southern erosional limit of the Paleozoic basin.

Further north, the plunge of the cylindricity axis gradually changes for the SSW forming an axial depression of the Paleozoic strata. The axial depression in the vicinity of the village of Olšany is evident from the geological map.

In the northernmost reach of the Moravian Karst the cylindricity axis plunges to the north. The northern limit of the Moravian Karst can be interpreted as a shallowly north-dipping dislocation.

Another interesting segment is represented by the vicinity of the preflysch Repechy Belt. The cylindricity axis plunges to the south in the northern part of the Repechy Belt and to the NNE in its southern part. The preflysch sequence of the Repechy Belt is thus situated in the axial depression. This interpretation contradicts the previous views situating the preflysch sequence to the core of the Culm anticline (Kettner 1966).

The SSW steep plunge of the cylindricity axis can be observed along the northern limit of the Drahany Upland. The SSW plunge can be interpreted as a flexure caused by the young reactivation of the WNW-ESE fault system.

References

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