of an active uplift of the hangingwall blocks on the reverse fault. Incised meanders of the Třebovka, Tichá and Divoká Orlice rivers indicate partial superposition on the actively asymmetrically rising ridges modified by reverse faulting.

There exist clues for the sedimentary, tectonic and erosional chronosequence modelling, like the absence of Tertiary deposits south of the main European watershed and their presence in the Třebovice Saddle and in the vicinity of Česká Třebová (Fencl and Schütznerová-Havelková, 1971). Traces of a former drainage system are widely scattered, making the paleopotamological and paleogeomorphological reconstructions difficult.

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Relationship of Emplacement of the Jihlava Pluton to the Structural Evolution and Tectonics of the Eastern Part of the Moldanubian Zone (Bohemian Massif)

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We consider structural evolution and tectonics around the major intra-Moldabnubian tectonic contact between Monotonous and Gföhl units and its relationship to the emplacement of the Jihlava syenite pluton. The study area extends from the eastern margin of the Moldanubian batholith to the western margin of the Třebíč durbachite pluton and is built by grt-crd-kfs gneisses, migmatites and amphibolites of the Gföhl unit and by bt-grt-sill paragneisses, metagreywackes and quartzites of the Monotonous units, respectively. These rocks are intruded by high-K mela-syenitoid magmas of the Jihlava pluton and associated sheets of melagranitoids.

Three deformation phases were recognized in the area. The earliest D_1 phase is mainly preserved in the Gföhl gneisses and migmatites in the SE part of the study area, being characterized by metamorphic gneissosity and migmatitic layering shallowly dipping towards S and SE. To the NW and in the Montonous unit, this fabric is represented by metamorphic schistosity steepened by close to isoclinal NW–SE-trending F_2 folds with subvertical axial planes. This folding, to a lesser extent, also affects the western margin of the Gföhl unit. In the northeast, minor melagranitic sheets were emplaced both along the subvertical and moderately dipping planes of S_2 foliation in the area of complete transposition of S1 fabrics. Last tectonic event, the D_3 phase, is marked by the development of brittle-ductile to brittle anastomosing network of right-lateral SSE–NNW-orientated zones (Přibyslav Mylonite Zone) bearing E- to S-plunging lineations marked by growth of chlorite and muscovite.

Fabric pattern of the Jihlava pluton is characterized by steep, S- to SE-dipping magmatic foliations overprinted by localized sub-solidus to ultramylonitic shear zones, dipping at moderate to steep angles to the ESE and NNW and bearing subhorizontal SSE lineation. AMS study revealed that the magnetic fabric pattern is consistent with magmatic and sub-solidus fabrics in the pluton and is characterized by generally low degree of anisotropy and dominant plane strain to oblate shapes of magnetic fabric ellipsoid. Paramagnetic minerals were the dominant carriers of the magnetic fabric, as indicated by measurements of bulk susceptibility variations with temperature.

Based on structural mapping and AMS analysis, we arrived at the following conclusions: (i) Fabrics of the Gföhl unit most likely reflect its shallow-dipping deep crustal thrusting over the Monotonous unit. This boundary is affected by subsequent steep folding, the intensity of which increases towards the W. It is possible that this late shortening event is related to buttressing stage of welding of the Gföhl – Monotonous units. (ii) Latest brittle-ductile to brittle faulting is connected to transtensional regime and overprints all previous fabrics. This array of shear zones was developed already on cooled crust and is connected with shallow-level intrusion of the Jihlava syenite. (iii) nternal structures of the Jihlava intrusion as well as the AMS fabric are kinematically linked to transtensional shear regime, which enhanced pull-apart magma emplacement mechanisms in extensional jog. The sub-solidus and late mylonitic zones cross-cutting the syenitic magmatic fabrics are geometrically and kinematically consistent with brittle-ductile D_3 shear zones affecting the host rock. In conclusion, the Jihlava syenite was emplaced after thrust-related welding and subsequent refolding of the Gföhl and Monotonous units and after their significant cooling.

Paleontological and Sedimentological Evidence of NW–SE-Striking Faults in the Northern Vicinity of Brno

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Summary

Cretaceous, Ottnangian, Karpatian and Lower Badenian sediments were studied during the geological survey on map sheets Tišnov and Blansko in the NE and N vicinity of Brno. Interpretation of paleontological, sedimentological and mineralogical analyses brought important conclusions on the influence of NW–SE-striking faults on the SE margin of the Bohemian Massif during the Mesozoic and Tertiary.

Cretaceous

Sediments of presumably Cretaceous, probably Cenomanian, age were found in paleokarst fillings in the Králova Cave near Tišnov and at the top of Čebínka Hill. Coarse sands were deposited in Devonian limestones at altitudes of around 430 m a.s.l. Both localities lie on a line in continuation of the Železné hory Fault and the Cretaceous sediments of Dlouhá mez. The most probable explanation of the origin and preservation of Cretaceous sediments is the analogy with northerly situated grabens running parallel to one another from the crystalline complexes to Paleozoic rocks (Blansko, Valchov, Vražné, Roveň and other grabens). The post-Cenomanian uplift of the Bohemian Massif induced erosion of sediments with only small relics being left in the paleokarst cavities of Květnice and Čebínka hills. Nevertheless, with some exaggeration, we may speak about the Tišnov Graben due to the tectonic importance of the phenomenon.

It is necessary to say a few words to support the stratigraphic determination of the above described cave sands. Translucent heavy mineral assemblage dominated by tourmaline, kyanite, rutile and staurolite, and the absence of garnet and apatite have been long considered very typical for the beginning of Cretaceous sedimentation in the region. This characteristic assemblage probably formed due to paleoclimatic conditions when tropical weathering sorted the original detritus in a specific way. Comparison of the cave sands with Badenian sands from their vicinity proved substantial differences in the heavy mineral assemblages.

Tertiary

Ottnangian samples were relatively poor in fossils: only redeposited Cretaceous foraminifers and clasts of corroded sponge spicules were found. These sediments are mostly represented by fluvial and lacustrine sand with intercalations of fine gravels. Some non-calcareous (sandy) clay was found at several localities. The sediments are most widespread in the Boskovice Graben between the villages of Čebín and Chudčice and in valley-shaped depressions west of Březina and between Maršov and Lažánky.

Two Karpatian samples contain relatively rich shallow-marine fauna with euryoxybiont taxa (for example, *Uvigerina graciliformis* Papp & Turn., *Pappina breviformis* (Papp & Turn.), *Ammonia beccarii* (L.) etc.). They were collected and described from two small localities of sandy clay near Moravské Knínice and Svinošice (Lipůvka).

Lower Badenian sediments are represented by typical "Tegel" (grey-green calcareous clay) with very rich and well developed marine microfauna of *Lenticulina echinata* zone *sensu* Cicha et al. (1975) with local rich planktonic species. Planktonic foraminifers such as *Orbulina suturalis* Brön., *Praeorbulina* ex gr. *glomerosa* etc. indicate deposition in an embayment with good communication with open sea. The assemblages of foraminifers also indicate shallow water.

Conclusions

Remnants of Cretaceous sediments in the "Tišnov Graben" were found along a NW–SE line between Tišnov and Čebín. They are considered a continuation of the Cretaceous sediments of Dlouhá mez, and the fault line is considered a continuation of the Železné hory Fault.

Stratigraphic change between the Ottnangian and Lower Badenian occurs along the line Dolní Loučky – Tišnov (WNW–ESE) and Tišnov – Čebín (NW–SE). Similar change can be observed along the line Adamov – Lipůvka (NW–SE).