1986). The falling stage of relative sea level is recorded by a Type-1 sequence boundary on shelves (between carbonate platform deposits and overlying formation), which were eroded by fluvial channels entering the basin through marginal delta-fed fans. During forced regression, the basinal slopes were actively tilted and incised by submarine valleys, which fed the basin-floor and slope fans. The Šambron fan (alike Tokáreň, Szaflary and Pucov fans, etc.) represents a lowstand systems tract consisting of channel-fill, spill-over and mass-failure deposits. The later stage of regression is evidenced by a progradational stacking of the Šambron "Beds" and by amalgamated sandstone unit (Bachledova Sandstone) representing a sandy toeset deposits of shelf-margin deltas (shingled turbidites).

The TA4 supercycle tends to gradual rise of relative sea level during the Lower Oligocene. Successive formation of the CCPB (Huty Fm.) respods to transgressive and highstand systems tracts. The transgression is marked by ravinement surfaces detected between Eocene Nummulitic banks and Middle Rupelian sediments of NP 23 Biozone (South Orava region) and locally as unconformity between growth-fault systems tract (Šambron "Beds") and overlying sequence of mud-rich fans. The basal sediments of the transgressive formation still revealed a cool-water influence and semi-isolation (wetzeliellacean dinoflagellates, reticulofenestrid species of NP 22–NP 23 Biozones, imprints of diatoms, etc.). The relative sea-level rising during the Lower Oligocene restored the Paratethyan circulation (Baldi 1984). Consequently, the CCPB became reoxygenated with increasing carbonate precipitation, productivity, fertility, etc. (calcareous claystones, abundance of cyclicargoliths, oxygen-related ichnocoenosis, etc.). Maximum flooding of this sequence falls into the condensed of manganese layers (the highest sea level occurred at 32 Ma – Haq et al. 1988). Late highstand of this formation is evidenced by small-scale progradational events and megaturbidite beds (Orava region). The Late Rupelian highstand sedimentation in the CCPB fits well with relative sea-level rise in the Outer Carpathian Basin marked by nanno-chalk horizons (cf. Krhovský and Djurasinovič 1993).

The TB1 supercycle was introduced by the Intra-Oligocene regression (distinctive drop in sea level at about 30 Ma – the beginning of the Antarctic glaciation and cooling of the Northern Hemisphere). The falling stage of the Late Oligocene regression in the CCPB is expressed by an offlap break of prior highstand sediments, which were eroded and reworked into conglomerate-slope accumulations of submarine fans (e.g., blocks of Mn carbonatic ores). Erosional truncation of the upper fan zones becomes less obvious towards the basin, inffered as correlative conformity between sand-poor turbidite system (Huty Fm.) to sand-rich turbidite system (Zuberec and Biely Potok Fm.). The sand-rich deposition of the CCPB lasted till the Early Miocene, as has been already indicated by some nannoplankton and foraminiferal species (e.g., *Helicosphaera scissura, H. kamptneri, H. cf. ampliaperta, Triquetrorhabdulus cf. carinatus?)*. The regression in the CCPB (as in the Paratethyan basins) reached the maximum lowstand at the base of the NN2 zone, when brackish fauna appeared (shallow-water brackish species of dinoflagellates – Hudáčková 1998, small gastropods, etc.). By this, the deposition of the Biely Potok Fm. should be terminated till the Early Eggenburgian, i.e. to the lowstand phase at the beginning of the NN2 zone, which preceded the next transgressive cycle of TB 1.5, occurred at the base of the Prešov Fm. The time-equivalent sedimentation in the Outer Flysch Carpathians also took place in lowstand setting, recorded by the Krosno Facies (Krhovský and Djurasinovič 1993).

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Calcite Mylonites of SW Brunovistulicum

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Calcite mylonites, which can be used for the study of the final stages of Variscan collision, are developed between the basement and the allochtonous units of the Variscan Orogeny in Moravia. A profile across the frontal part of the orogen in SW Moravia is analysed for the assessment of trends in fabric evolution of the mylonitized limestones. The profile comprises the footwall of the Moravian nappes (the Závist–Květnice Unit of the Svratka Dome) and their close foreland (sedimentary cover of the western part of the Brno massif).

Strain magnitudes and geometries, palaeotemperatures, microstructures and lattice preferred orientation (LPO) are measured and correlated in many samples of the profile studied.

Strain parameters were obtained from deformed bioclasts and pressure fringes along quartz clasts. Illite crystallinity, vitrinite reflectance and conodont colour alteration index were used for the estimation of maximum paleotemperatures. The computer image analysis of the photomicrographs obtained in optical microscope and TEM were used for measuring size and shape parameters. X-ray diffraction texture analyses (reflection geometry) were applied to the measurement of the LPO of fine-grained matrix. Orientations of coarse grains were measured in thin sections in U-stage and thus "semidomainal" c-axes distribution analysis was carried out.

The results of microfabric analysis allow to distinguish several basic groups of (proto-)mylonites with similar features:

A) Types with clasts/matrix composition. In spite of substantial strains, matrix carries no traces of microfabric changes. Clasts are usually twinned and/or slightly undulose. The distribution of the c-axes of the clasts is random to strong with single maximum near the S-pole. Bulk X-ray LPO is much weaker, increasing with the higher volume of the clasts. Fabric development of this type is explained by strain partitioning due to grain-size inhomogeneity, with preferential strain localization into matrix. The interpreted dominant mechanisms of the deformation are grain-boundary sliding (GBS) + diffusion transport at the grain boundaries (mainly fluid transfer) for the matrix and brittle fracturing + twinning + intracrystalline slip for the clasts.

B) Protomylonites with mantled porphyroclasts/matrix structure. The core-and-mantle structures develop along the clasts. In the matrix grain growth indicates grain boundary migration (GBM). No traces of subgrain formation were observed in most of the recrystallized samples and thus all the dynamically recrystallized grains are interpreted as the products of GBM. The LPO of these types of protomylonites has similar features as that in type A: strong single maximum of the c-axes near the S-pole, which is weakened in the LPO of whole sample. The activity of GBS is likely to persist both in the matrix and in the domains of recrystallized grains.

C) Mylonites with relict porphyroclasts and relatively coarse-grained matrix (20–30 μm). All the grains are strain-free, with higher grain aspect ratios, grain boundaries are straight to slightly curved. LPO is similar for both the matrix and the porphyroclasts, showing single c-axes maximum near the S-pole. GBM has the dominant effect in this microstructure, nevertheless, substantial simultaneous role of twinning and ICS is likely as well, as indicated e.g. by high aspect ratios and the distribution of c-axes.

D) Coarse-grained marbles with no porphyroclasts. Homogeneous domains are developed with uniform grain size, which depends on the volume of dispersed sheet silicates and dolomite. In domains with small amount of secondary phases the grain size is usually 110–140 μm. All the grains are strain-free, having almost straight boundaries. Domains with equant coarse grains and grain boundaries meeting at 100–140° triple junctions can be occasionally observed. Generally strong LPO is weaker in the domains with equant grains. These types of fabric indicate very low to zero differential stress during final formation and can be viewed as the products of static recrystallization.

E) Further low-temperature deformation of the marbles of type D generated strong twinning, undulosity and grain-size reduction at grain boundaries.

The absence of subgrains in the porphyroclasts of all the types described indicates that the given conditions of deformation (low temperature?) did not probably allow the activity of recovery process in calcite. Consequently, each increment of continued deformation increased the internal strain of the grains and thus raised the velocity of GBM. The high content of water, indicated by frequent markers of solution transfer, could have also accelerated GBM process (cf. Tullis and Yund 1982, a.o.).

Palaeotemperatures measured in the limestones covering the western part of the Brno massif show no substantial correlation with microfabric and are similar to those from the Závist–Květnice Unit of the Svratka Dome (max. 300 °C; e.g., Bosák 1983; S. Ulrich, pers. comm.). In contrast, finite strain values increase significantly from A to D types. Continuous evolution of the mylonites from A, B and C types in similar temperature conditions is suggested with stepwise freezing-in of the microfabric. The protomylonites of the Závist–Květnice Unit with the weakest strain fabric are concentrated mainly in the internal (tectonically lowest) part of the dome and show strong affinity to the sheared limestones of the western Brno massif. Types A–C and markedly contrasting type D are unlikely to have been produced together in a normal deformational gradient and could be better explained by their juxtaposition in late tectonic phases.

The research is supported by Grant Agency of the Czech Republic as a part of the project 205/98/0751.

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Tectonosedimentary Evolution of the Cheb Basin (Cenozoic, Western Bohemia)

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The Cheb Basin is located at the intersection of the Ohře Graben structural domain, dominated by NE-trending graben systems in present-day geology, and the NW-trending Cheb–Domažlice Graben. Our study, based on the revision of borehole data, geological maps, newly constructed isopach maps, and DTM (digital terrain model) data, brings new insights into