sediment curve. This can be explained by a relative rise of sealevel, which enlarged the accomodation space for the sediments. Sedimentation in this part of the basin was controlled by the Bristol Channel Landmass (BCL), its sediments and facies–symmetries.

Only a speculative geometry for the southern basin margin can be reconstructed. Either the sediment masses were transported laterally in a drainage seaway in front of the Variscan thrust load, and/or the erosion– and transport–coefficients were very small and the south margin represents an underfilled foreland basin. This can be modeled with a thermally young (24 Ma) elastical lithosphere of ca. 30 km thickness yielding a deep and wide basin. The uplift of the BCL in the north can not be explained by the upwarp of a peripheral bulge, because sediment mass–balances demand an uplift of ca. 2km of the source area. This uplift is thought to have been a result either of inversed extensional faults, due to Variscan compression, or of the dextral Bristol Channel Fault System.

RETROGRADE FLUID EVOLUTION IN THE BOHEMIAN MASSIF (LOWER AUSTRIA)

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The Lower Austrian part of the Bohemian Massif is represented by the Moldanubian Zone and the structurally underlying Moravian Zone. The Moldanubian Zone exibits a nappe–like structure. The various nappes can be distinguished by their distinct lithologies and metamorphic conditions. All of them experienced a retrograde overprinting, which was caused by the underthrusted Moravian Zone. Fluid inclusions are used to derive the fluid evolution during the retrogression. Four types of inclusions can be identified. Type 1 is most abundant and contains CO_2 with minor amounts of CH_4. Type 2 consists of $CO_2 + H_2O \pm CH_4$. The density of the carbon dioxide component in both types is generally low. Type 3 are moderate saline aqueous inclusions ($NaCl_{eq}$ < 10 wt.%). $T_{H(L)}$–values range between < 100 and 375 °C. Type 4 is N_2– dominated. The homogenization of nitrogen is critical or into the vapour phase near the critical point.

All inclusions are hosted by quartz. They are arranged in trails or clusters, thus their origin is regarded as secondary. Apparently, there is no correlation between occurrence of the various types of fluid inclusions on one hand and the geological position and lithology of the host rocks on the other hand. Therefore the fluid composition seems to be triggered by external buffering. None of the inclusions represents the fluid of peak metamorphic conditions, but they record the cooling and uplift history of the rocks.

A model is proposed where fluids released from the Moravian Zone migrate into the overlying Moldanubian Zone to trigger retrograde hydration reactions. These reactions consume preferably water and cause a progressive H_2O–depletion of the fluid. This evolution leads finally to a CO_2–rich fluid. Inclusions of type 1–3 reflect the outlined development. N_2–rich inclusions are remnants of the youngest fluid that migrated through the rocks.

ARENITES OF THE LOWER DEVONIAN RHENISH BASIN (RHEINISCHES SCHIEFERGEBIRGE, FRG)

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Depositional composition of arenites was studied from sediments of the Lower Devonian Rhenish Basin. Burial diagenesis up to very low grade metamorphic conditions were determined for these and for associated rocks. Modifying processes like alteration, cementation, pressure solution and dissolution of detrital material have to be taken into account for provenance interpretation.

Besides traditional petrographic methods like polarization microscopy, investigations using cathodoluminescense microscopy, electron microprobe analysis and SEM were included.

Cathodoluminescense allows a more detailed differentiation of monocrystal quartz grains. OWEN & CAROZZI (1986) used the ratio of brown– to blue–luminescing grains for their source area determinations. In this study, a ternary diagram with a more detailed subdivision of quartz luminescense (brown/blue/red colours) is very useful for more distinct provenance interpretation.