alkalinity) with Au–Cu–Mo porphyry mineralization occurs. Its generation is likely to be closely linked with the formation of pipe–shaped bodies of explosion–hydrothermal breccia with Au–Cu telluride ores of acidic–sulphate type.

THE MAJOR ROLE OF TRANSFER ZONES IN THE CRUSTAL STRUCTURE OF THE MID–EUROPEAN VARISCAN BELT

A. KROHE[1], A.P. WILLNER[2]

[1] *Institut für Mineralogie, Correnssstr. 24, D–48149 Münster, Germany*

[2] *Institut für Mineralogie, Ruhr–Universität, D–44790 Bochum, Germany*

The Mid–European "Variscan" belt is basically situated within a weakened marginal area of Gondwana lithosphere, at the boundary region to the paleocontinents of Baltica and Laurentia. In this area, the most important structural imprints occurred between 390 and 400 Ma, after the collision between these paleocontinents. This "Variscan" deformation is concentrated into several crustal scale mega–shear zones which emplaced a collage of tectonic blocks that are extremely variable in tectonometamorphic histories. Tectonic blocks were subdivided into (a) blocks of metamorphic rocks which were uplifted from various crustal depths showing a large variety of PT–paths and (b) basins containing more or less continuous Lower Paleozoic stratigraphic sequences that are weakly or unmetamorphosed as they stayed in a near surface position. While in the metamorphic tectonic blocks earlier episodes of crustal thickening are inferred by mineral relics of medium and high pressure stages the basin sediments show no evidence of substantial earlier thickening. Rapid uplift of individual crustal blocks between 390 and 300 Ma is indicated by (1) various mineral cooling ages with different closure temperatures which are in a close range within individual metamorphic bodies and (2) by a change to coarse grained clastic sedimentation in the adjacent basins suggesting fast steepening of the submarine relief. In general, tectonic contacts between metamorphic and sedimentary blocks are wide zones of ductile deformation including large amounts of strike slip movements. These contain a huge variety of tectonic slices differing in maximum PT– conditions and PT–paths. The strike slip shear zones are transtensive or transpressive and acted as transfer zones that link two crustal sections contrasting in displacement geometries during activity of the faults. This is examined in three model regions in which the uplifted crustal slices display rather different pre–shearing histories: (1) In the Odenwald region previously thickened and thinned crustal sections were confined by NE–SW trending sinistral zones of strike shear, and (2) along the N–Erzgebirge margin by NE–SW trending sinistral and NW–SE trending dextral zones of strike shear showing transtensional geometries. In both regions the previously thickened wedge underwent extension along zones of normal shear linked with the strike slip fault zones. By contrast, (3) in the Schwarzwald and Vosges area ENE–trending zones of dextral shearing connect systems of shear zones that reflect alternating episodes of transpression and transtension. Synkinematic plutons that intruded into these shear zones are ubiquitous. In any case, displacements on normal rsp. reverse fault zones geometrically related to strike slip zones cause upward transport and juxtaposition of metamorphic slices against Paleozoic basin sediments. Concomitant opening and closure of minor oceanic pullapart basins (e.g. in the Rhenohercynian realm) are also related to strike slip motions. This general tectonic pattern results (i) from lateral movements and rotation of Gondwana relative to Laurasia after collision, (ii) from body forces excerted by previously (i.e. before 400 Ma) thickened wedges on surrounding areas and (iii) from lateral E–W–extrusion of fault bounded crustal blocks within the Variscan realm.