rocks, and, eventually, phyllites and higher-grade crystalline rocks. S-dipping reflections in this part of the profile probably correspond to more important thrusts, which together form an accretionary wedge at the northwestern front of the Mid-German Crystalline High.

The Moho rises from 11 sec to 8.5 sec TWT. Crustal thinning in the south probably relates to post-Variscan events such as rifting in the Rhine-Graben.

STRUCTURAL ANALYSIS AND TECTONIC EVOLUTION OF THE RHENOHERCYNIAN FOLD BELT[1]

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ABSTRACT.- The Rhenohercynian (Rheinisches Schiefergebirge and Harz) section of the Variscan orogene is geometrically defined by a pattern of predominantly NW verging folds ranging from the 10 km to the 1 m size. The pre-existing sedimentary rock pile contains some well bedded rocks (e.g. turbidites) favouring the capability of the rocks to be folded. The other specific structural elements are some low angle thrusts and a penetrative tectonic deformation following the folding of rocks and leading to the well known phenomena of transverse (slaty) cleavage (S_1). The S_1 patterns vary strongly depending on the lithology, structural level within the orogene and the local finite strains within individual folds. The Rhenohercynian belt offers unique conditions of studying the progressive development of S_1 patterns within single folds and on a regional scale correlated both geometrically and genetically with fold geometries, finite strain markers as fossils, pressure shadow fillings of the micro-scale, and X-ray texture analyses of the rock forming phyllosilicate minerals. The formation of a second schistosity (S_2) together with refolding is restricted to the southernmost part of the Rhenohercynian.

Extensive in situ studies of tectonically deformed fossils and other finite strain markers lead to the result that BREDDIN's model of «planar cleavage» involving «true flattening» and consequently a finite elongation of the rocks roughly along the strike of the fold axes is no longer valid. Instead «apparent flattening» (finite uniaxial strain) predominates in high crustal levels grading into finite triaxial strains of deeper crustal levels.

The folding of the Rhenohercynian is due to one single tectonic event (predominantly during Upper Carboniferous times). There is no evidence for some precursory tectonic events (Caledonian) within the older Paleozoic rocks east of the river Rhine (Schreiner, 1982).

Geodynamic models for the Rhenohercynian belt presented in the literature reach from simple fixistic models of diapirism (Krebs & Wachendorf, 1973, 1974) to sometimes speculative plate tectonic models. Instead a modified simple shear kinematic model for the Rhenohercynian section triggered by plate tectonic and magmatic activities from the internal part of the whole orogene has been favoured by the author. This model based upon kinematic analyses of single folds, drilling and seismic evidence has to be modified at least by the effects of high syntectonic pore fluid losses of pelitic rocks in low crustal levels and low to very low angle thrusts partly leading to decoupling effects within deeper crustal levels.

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