LATERAL VARIATIONS OF DEFORMATION STYLE IN VIRTUALLY COAXIALLY DEFORMED SEQUENCES: THE EXAMPLE OF THE UPPER SILURIAN OF THE INCLINED SHIPLIFT AT RONQUIERES, SOUTHERN BRABANT MASSIF (BELGIUM)

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The inclined shiplift at Ronquières, situated at the southern edge of the Lower Palaeozoic Brabant Massif, contains two perfectly exposed sections of deformed, low-grade metamorphic, lower Ludlow distal turbidite deposits, unconformably overlain by virtually undeformed, gently S-dipping, diagenetic Middle Devonian and younger deposits. Both outcrop sections, one along the W-side and one along the E-side, were first described by Legrand (1967). This author described the large-scale, two-dimensional geometry of the deformed upper Silurian beds in both sections, was able to demonstrate the pre-Givetian age of the convergent cleavage fans, and also pointed out the importance of reverse and normal faults. However, although both sections show significant differences in structural geometry, the analysis of Legrand (1967) was largely two-dimensional, and the geometrical differences between both sections were mainly attributed to lateral fault movement, for which no evidence was presented. Later, Debacker *et al.* (1997, 1999) re-examined the eastern outcrop section in a more detailed manner. Although largely confirming the observations of Legrand (1967), these authors also tried to visualise the deformation in three dimensions and were able to demonstrate subtle variations in fold orientation across the section, resulting in a variable cleavage transection angle. This was explained by considering the folds as large-scale en-echelon periclines, which formed in an overall coaxial deformation regime. In contrast to the suggestion of Legrand (1967), none of the faults were found to show indications of lateral or oblique-slip movements: all faults show striations with an almost perfect dip-slip orientation. However, this study largely neglected the western section. More recently, a large-scale synthesis of outcrop observations suggested that, from a structural point of view, the inclined shiplift occupies an almost central position along the southern rim of the Brabant Massif, thus supporting the coaxial nature of the deformation at this locality (Sintubin, 1997, 1999).

In order to adequately compare both outcrop sections, a detailed structural analysis was performed at the W-side of the inclined shiplift. This study confirms, amongst other features, 1) the subtle change in fold trend, changing from WNW-ESE in the south to NW-SE in the north, 2) the virtually constant cleavage trend and 3) the dip-slip fault movement. However, despite the virtually coaxial nature, differences do exist between both sections. Both the W-ward divergence of the fold hinge lines and a comparison of both outcrop sections seemingly suggest that the amount of folding-related shortening is higher on the E-side than on the W-side of the inclined shiplift. Possibly, this difference in shortening is taken up by reverse faulting, apparently occurring more frequently on the W-side. In addition, the geometry of the southern, intensely folded and faulted part is almost completely different in both sections. Finally, also more subtle, small-scale differences exist, such as the local presence of mullions on the W-side, being absent on the E-side.

Whatever the cause of the observed differences, the observations show that, even within virtually coaxially deformed sequences, lateral variations in deformation style may exist.