

Folding and faulting in the Weltevrede Formation on Varsfontein, Steytlerville area

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ABSTRACT

A field study of the lowermost stratigraphic unit of the Witteberg Group (Cape Supergroup, Steytlerville area, Eastern Cape), has shown that rocks of the Weltevrede Formation are composed predominantly of folded argillaceous rocks intercalated with lesser thinly-bedded arenaceous beds. The purpose of this study is to document and provide detailed lithological and structural data, and interpret these in relation to regional geological and structural patterns in the area.

Rocks of the Weltevrede Formation show colour variations in both shales and quartzites as a result of variable quantities of iron oxide minerals in the rock. Sedimentary structures are plentiful, especially in quartzites and are useful in the interpretation of facing direction of strata. Trace fossils characteristic of the Witteberg Group, especially *Zoophycos* and *Monocraterion* are frequently present in all rock types.

Strata are folded into open anticlines and synclines that plunge at shallow angles towards the east-southeast. Folds all verge northwards, indicating deformation forces originated from the south. One set of faults have an east-west strike orientation, whereas a second set strike approximately north-south. The former are interpreted as products mainly of flexure-slip folding, whereas the latter are probably related to a prominent strike-slip fault in close proximity to the study area. From the orientation of structures in the study area we conclude that all structures in the study area conform with the regional structural pattern, and therefore have an integral relationship with deforming forces that were present during the Cape Orogeny, during the Late Palaeozoic.

Key words: Weltevrede Formation, folded and faulted rocks