

POLYMETAMORPHIC TEXTURES AND STRUCTURES  
OF THE MIGWANI AREA, KITUI

by

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## ABSTRACT

A geological mapping of Migwani area, sheet 151/1 of Kitui district, was carried out between October 1977 and September 1978 so as to elucidate its structural evolution. The area occurs in the eastern section of the Mozambique belt of Kenya and its rocks are largely metamorphic. They vary from migmatites, pelitic gneisses, semi-pelitic gneisses and psammitic granulites. In addition, these rock types contain metamorphosed basic or ultrabasic intercalations and also pegmatites, aplites and veins which are largely quartzo-feldspathic.

All these rocks are of Precambrian age. The migmatites, the gneisses and the psammitic granulites have been polymetamorphosed as indicated by multiple foliations, cataclasis of the pre-existing minerals and growth of distinctive textures of at least two regional metamorphisms as deduced in microscopic studies. These rocks have suffered at least two regional metamorphisms. Index minerals, sillimanite and almandine garnet, observed in these rocks show that the metamorphic grade possibly during the two metamorphisms was high and reached the highest two sub-facies of the amphibolite facies. Alkali metasomatism is revealed by the high microcline content and by the albite - oligoclase porphyroblasts in the rocks. The migmatites have also resulted through granitization. In these Precambrian

metamorphic rocks, Tertiary (?) lamprophyre dykes are also commonly observed.

The mesoscopic structures of this area include foliations, lineations, minor folds, joints, minor faults and boudins. An earlier NNE - SSW foliation ( $S_1$ ) is intercepted by the later regional NNW - SSE foliation ( $S_2$ ). An almost E - W foliation ( $S_3$ ) was observed in one outcrop. Migwani area has a type of  $B \wedge B^1$  triclinic fabrics that were as a result of unrelated strains. The area is a part of the eastern limb of the Kitui anticline. Small dip faults and two major faults oblique to each other, the Ikoo and the Mutito, also occur.

From the occurrence of the migmatites along the core of the Kitui anticline and from both the metasomatic consideration and structural analysis, these migmatites could be a remobilized basement to the Mozambique belt that also incorporated some cratonic rocks of the underlying older shields.