

EVIDENCE FOR PARTIAL MEETING IN A  
CORDIERITE-BIOTITE-SILLIMANITE GNEISS  
FROM DOMBAWELA, MATALE.

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Cordierite occurs both in the Highland Group (HG) and Southwestern Group pelitic rocks but its occurrences in the HG is sporadic. A field and petrographic study of a cordierite-bearing migmatite from the HG, at Dombawela, Matale is reported.

Migmatitic cordierite-biotite-sillimanite gneiss crops out in two abandoned quarries at Dombawela. It is a fine-grained, well foliated and thinly layered rock consisting of alternative quartzo-feldspathic and biotite rich layers. Sillimanite is plentiful on biotite foliae and it is usually lineated but occasionally, coarser disoriented needles are noted. Blue-gray granular cordierite occurs in or adjacent to the biotite layer. Small red garnet is rare in the gneiss.

Presence of medium-coarse-grained layers and patches give a migmatitic character to the gneiss. The layers are usually discontinuous and have variable thickness (a few cm to several inches) and they occur parallel, or oblique to the foliation. Irregular to oval shaped patches invariably disrupt the foliation. (made up of pink feldspar, purple cordierite and colourless to white quartz with an essentially granular texture). Occasionally clusters of (1) garnet-biotite, (2) garnet-cordierite, are present in them. The rocks at Dombawela are described as layered to patchy migmatites.

Petrographic study reveals that the gneiss contains biotite, microcline, quartz, cordierite and ilmenite with a granoblastic. Rare 'reaction clusters' preserve evidence for the reaction, biotite + sillimanite + quartz  $\longrightarrow$  k-feldspar + Cordierite + ilmenite + H<sub>2</sub>O.

Petrographically, two distinct assemblages are recognised in the migmatitic layers and patches a garnet-bearing assemblage and a garnet-free assemblage. The garnet-free part is composed of modally variable, microcline, plagioclase, quartz and cordierite and contains relict biotite and sillimanite as inclusions in both microcline and cordierite. The occurrence of rare sillimanite within plagioclase which in turn being enclosed by microcline is petrogenetically significant. The textural and mineralogical features suggest that the following 'dehydration-melting' reaction has occurred in the rock, Biotite + sillimanite + quartz + plagioclase  $\longrightarrow$  cordierite + k-feldspar + melt.