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COEXISTENCE OF "ARRESTED" AND "REGIONAL" CHARNOCKITES

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Charnockites or charnockitic gneisses characterize both Highland Group and Southwestern Group of Sri Lanka. Charnockites are intimately associated with metasediments and they owe their origin to granulity grade regional metamorphism. These charnockites are referred here as 'Regional charnockites'.

Spectacular occurrences of arrested charnockites were first observed around Kurunegala area, where amphibolite grade biotite±hornblende gneisses have partially converted into patches, veins and layers of charnockites. Later, similar occurrences of arrested charnockites were reported from a wider area of the Precambrian of Sri Lanka. We report here occurrences of both regional and arrested charnockites from two localities in Southwestern Group: viz. Koradeniya and Ovitigama.

The quarry at Ovitigama consists of well layered biotite gneisses consisting of alternate pale pink quartzo-feldspathic and biotite rich layers and these gneisses are interbanded with dark coloured charnockites, though massive, contain thin biotite rich layers. Irregular to oval shaped patches and layers of arrested charnockites have developed in the biotite gneisses.

The Kotadeniya quarry is made up of pelitic to quartzo-feldspathic gneisses. Migmatitic quartzo-feldspathic layers contain coarse deep blue-purple cordierite. Garnet in the pelitic layers is commonly rimmed and replaced by cordierite. The gneisses are inter banded and isoclinally folded along with charnockites. Coarse-grained irregular patches of arrested charnockites containing prominent black pyroxene, purple cordierite and red garnet, have formed in the gneises. The coexistence of cordierite-K-feldspar-orthopyroxene in the charnockitised parts indicate that the pressure during the formation of arrested charnockites was low (3 kb).

On the basis of field relationships, textures and available phase equilibria and P, T data, we suggest that the rocks of the two areas have under gone granulite grade metamorphism at least twice. An earlier phase of medium pressure, regional granulite grade metamorphism and a later phase of low pressure, local granulite grade metamorphism.