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Two modes of occurrence of ”arrested charnockite” in Sri Lanka

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Felsic to intermediate lithologies charnockitized incompletely have been called as ”arrested charnockite”. These types of high-grade metamorphic rocks occur in Sri Lanka, as well as Antarctica and South India that formerly constituted Gondwana-land. We described the mode of occurrence and chemical composition of the constituent minerals of the arrested charnockite from two outcrops in Sri Lanka. In the first outcrop near Kurunegala, charnockite occurs as a number of patches with lentituclar to ovoidal shapes. The long axes of the patches are not parallel to the foliation defined in the surrounding felsic gneiss. The boundary between charnockite patch and surrounding gneiss is obscure. Compositional layerings composed of Hbl-rich domain and Hbl-poor domain disappear gradually into charnockite. In the second outcrop near Kandy, charnockite is developed as a vein along a fracture of Grt-Bt felsic gneiss. The boundary is obscure. The compositional layerings and mineral preferred orientation recognized in the host gneiss are preserved in the charnockite domain.

In the charnockite from the first outcrop, orthopyroxene occurs commonly. The orthopyroxene grains are locally re-placed by cummingtonite along rim and cheavage. Orthopyroxene appears at inner portions of the boundary of charnockite patches recognized by naked eye. The modal abundance of orthopyroxene increases with increasing distance from the bound-ary. In contract, vein-like charnockite from the second outcrop, many symplectites occur while orthopyroxene is not found. The suroundring gneiss also has symplectites locally. The symplectites are composed of various mineral assemblages, such as Amp+Pl+Ilm+Mag+Cpx, Amp+Pl+Ilm+Mag and Pl+Ilm+Mag.

Amphibole can be divided into two based on the chemical composition. One has higher Ca and Al than another. The former occurs in the host gneiss and also in the charnockite that defines gneissosity. The latter amphibole (cummimgtonite) is recognized only in the charnockite and either replaces orthopyroxene in the patchy charnockite or consists of symplectite in the vein-like charnockite. The cummingtonite in the symplectite showing similar composition to that replacing orthopyroxene sug-gests that the symplectites in the vein-like charnockite were originally orthopyroxene which has broken down during retrograde metamorphism.

Keywords: charnockite, Sri Lanka