

ON CORDIERITE BEARING ROCKS OF SRI LANKA — PRECAMBRIAN

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In Highland Series rocks of Sri Lanka — Precambrian, cordierite occurs in three different modes. Platy or elongated cordierite aligned parallel to the regional foliation is often in equilibrium with surrounding minerals. Cordierite developed as intergrowths is associated with K — feldspar, magnetite and sometimes, hypersthene. Translucent, coarse — grained clusters of cordierite are common in felsic lenses of partly migmatized gneisses and their associated veins or dykes.

Regional geothermobarometry indicates that the P/T conditions during the development of cordierite— orthopyroxene symplectites around central highlands (Gampola) are 6.5 kb and 750 ± 50 °C. High-Mg, low-Ca nature of bulk rock composition is reflected in mineral chemistry. Compared with eastern parts of Highland Series, this area has a pressure decrement of about one kb. Apparently, these intergrowths have been a response to the decreasing effective load pressure under isothermal conditions.

Metamorphic pressures of southwestern Sri Lanka (where cordierites have been extensively developed) were calculated using different versions of garnet + cordierite + sillimanite + quartz geobarometer. Minimum pressure of 5.5 kb was obtained according to (Newton & Wood, 79) and (Martingole & Sisi, 81) assuming anhydrous conditions. Under hydrous condition, (Newton & Wood, 79) estimates a pressure of 6.5 kb and (Martingole & Sisi, 81) gives much higher pressures. An intermediate value of 6.5 kb is given by (Hutcheon et al, 74) and (Thompson, 76). An attempt is made to infer the P_{H_2O} during metamorphism by incorporating the present study to already existing geological data.