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METADIKES IN THE EASTERN SØR RONDANE MOUNTAINS, EAST ANTARCTICA (ABSTRACT)

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Two groups of metadikes, older and younger ones, are distinguished in a polymetamorphic migmatitic gneissic complex making up the eastern Sør Rondane Mountains. On the basis of field relations and petrographic characters, the older metadikes are considered to have been emplaced before the main regional metamorphism of upper amphibolite- to granulite-facies, and the younger one emplaced between the main metamorphism and a later amphibolite-facies metamorphic event associated with migmatitization.

The older group, which is garnetiferous amphibolite containing garnet, clinopyroxene, hornblende, biotite, plagioclase, quartz and ilmenite with or without orthopyroxene, crops out at a locality in the northern part (Austhamaren) and at two localities in the central part (Hesteskoen). The Austhamaren metadike still preserves an original form of dike, while the Hesteskoen ones have been highly deformed. Microprobe analyses of the older metadike from Austhamaren indicate that each kind of the mafic minerals is nearly uniform in composition among grains as well as within a grain, except relatively large garnet grains (>0.2 mm) zoned with outward Fe increases. Orthopyroxene-garnet, clinopyroxene-garnet, and orthopyroxene-clinopyroxene geothermometries for this rock yield equilibrium temperatures of 740–800°C, which are consistent with the granulite-facies conditions (700–780°C at ≥7 kbar) obtained from iron-rich mafic granulites in Austhamaren (GREW *et al.*: Proc. NIPR Symp. Antarct. Geosci., 3, 100, 1989).

The younger group, which is biotitic schist locally containing blastporphyritic plagioclase grains, is found at seven localities in the area, and trends E-W and dips moderately (30–50°) to the south. Metamorphic minerals include hornblende, biotite, plagioclase, quartz, K-feldspar, sphene, ilmenite and rarely clinopyroxene but no orthopyroxene and garnet. Such mineral associations indicate that the original dike rocks have been metamorphosed under amphibolite-facies conditions.

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