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HIGH-GRADE METAMORPHIC ROCKS FROM THE CENTRAL PART OF THE SØR RONDANE MOUNTAINS, EAST ANTARCTICA (ABSTRACT)

Yasuhito OSANAI[1], Yuhei TAKAHASHI[2] and Tohru SAKIYAMA[3]

[1]*Department of Geology and Mineralogy, Faculty of Science, Hokkaido University, Kita-10, Nishi-8, Kita-ku, Sapporo 060*
[2]*Geological Survey of Japan, 1-3, Higashi 1-chome, Tsukuba 305*
[3]*Institute of Geology and Mineralogy, Faculty of Science, Hiroshima University, 1-89, Higashi-Sendamachi 1-chome, Naka-ku, Hiroshima 730*

The metamorphic rocks in the central part of the Sør Rondane Mountains can be regionally classified into the northern and southern groups. The former is mainly distributed in the Brattnipene, Austkampane, and Tvitaggen massifs, and in the northern part of Menipa massif. It consists of various kinds of granulite-facies metamorphic rocks accompanied by intrusive granitic-granodioritic rocks. On the other hand, the southern group, distributed in the Walnumfjellet, Lunckeryggen, Mefjell, and Dufekfjellet massifs, and in the southern part of Menipa massif, is composed of amphibolite- to greenschist-facies metamorphic rocks and various plutonic rocks.

The granulite-facies rocks in the northern group are mainly pelitic to semipelitic gneisses with subordinate amounts of basic to intermediate rocks and calc-silicate rocks. They have generally a NWN-ESE strike and a homoclinal structure dipping south. Representative mineral assemblages of granulite-facies rocks are as follows:

Pelitic-semipelitic:	Gt-Cd-Sil-Kfs, Gt-Bt-Sil-Kfs, Op-Gt-Cd, Op-Gt (+Pl, Qz).
Basic-intermediate:	Op-Hb-Bt, Cp-Hb, Cp-Bt, Hb-Gt (+Pl, ±Qz).
Calc-silicate:	Cp-Gt-Sc-Ep, Gt-Phl-Hm-Cp-Cc.

The metamorphic conditions of pelitic granulites are estimated to be 730–830°C, 6.9–7.8 kb and $a_{H_2O} \leq 0.12$ on the basis of quantitative geothermo-barometers.

In general, these metamorphic rocks have undergone retrograde metamorphism. Especially in pelitic granulite, an association of kyanite and biotite has formed through retrograde metamorphism.

The northern group is characterized by the prevalence of thrust faults trending subparallel to the metamorphic foliation with a southward dip. The rocks around the thrust faults are strongly mylonitized into blastomylonite to ultramylonite. It is assumed that the northern group forms "schuppen structure". Therefore, kyanite was formed under the condition of *ca.* 530°C and 5.5 kb through the rapid retrogression of temperature and pressure due to thrust-up movement, resulting in the schuppen structure.

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