NATIONAL INSTITUTE OF POLAR RESEARCH

ANTARCTIC GEOLOGICAL MAP SERIES
SHEET 4 ONGULKALVEN ISLAND

Explanatory Text of Geological Map of Ongulkalven Island, Antarctica

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Ongulkalven Island

Ongulkalven Island separated by the Nishi-no-seto Strait from West Ongul Island to the west, is known as a rookery of adélie penguins. The island, accompanied by a small island called Kurumi Island, has a gentle topography like that of other islands although there are steep cliffs along the west coast.

Geology of the island is similar to that of West Ongul Island (YANAI, TATSUMI and KIKUCHI, 1974) and Teöya (YANAI, TATSUMI, KIKUCHI and ISHIKAWA, 1975). The island is composed principally of garnet-biotite gneiss, with minor amounts of pyroxene gneiss, porphyroblastic gneiss, hornblende gneiss, granitic gneiss, and metabasite. Their foliation strikes N-S or NNE-SSW, and dips to the east monoclinally.

Chemical composition and radiometric age of a biotite-garnet-plagioclase rock (sample number 68090706) from Ongulkalven Island are as follows:

Chemical composition (wt. %), analyst: K. YANAI

SiO_2	48.34	CaO	4.96
TiO_2	1.92	Na_2O	3.47
Al_2O_3	20.91	K_2O	2.97
Fe_2O_3	0.63	H_2O^+	0.97
FeO	10.34	H_2O^-	0.16
MnO	0.21	P_2O_5	0.07
MgO	4.71	Total	99.66

Radiometric age (YANAI and UEDA, 1974)
Mineral analysed=biotites
K-Ar age (m.y.)=515, 539.

1.1. Garnet-biotite gneiss (Ggb)

The island is occupied largely by medium- to fine-grained garnet-biotite gneiss. The rock shows a reddish brown color owing to the presence of abundant garnet and biotite. The banded structure due to the alternation of leucocratic and

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melanocratic layers is remarkable in the rock. Garnet, biotite, plagioclase, potassium feldspar and quartz are the main constituents.

1.2. Pyroxene gneiss (Gp)

Pyroxene gneiss is found in the central, western and eastern parts of the island. The rock is characterized by a brown color owing to colored quartz and feldspars and by common occurrence of pyroxenes. The main constituent minerals are clinopyroxene, orthopyroxene, hornblende, plagioclase (An35-40), potassium feldspar and quartz. Biotite is found rarely.

1.3. Porphyroblastic gneiss (Gpo)

Porphyroblastic gneiss is found in the eastern part of the island. The rock is generally coarse-grained with a distinct gneissose structure. The constituent minerals are quartz, plagioclase (An26-30) and potassium feldspar, associated with minor amounts of garnet and biotite, then showing a rather leucoclatic nature.

1.4. Hornblende gneiss (Gh)

Hornblende gneiss occurs only in Kurumi Island. The rock is medium-grained and brownish to reddish grey in color. The foliation of the gneiss is distinct and the constituent minerals are green hornblende, biotite, potassium feldspar, plagioclase (An30), and quartz without garnet.

1.5. Garnet-bearing granitic gneiss (Ggg)

Thin beds of coarse-grained garnet-bearing granitic gneiss are found in the central part of the island. The gneiss contains plagioclase, quartz, potassium feldspar, with minor amounts of biotite and garnet.

1.6. Metabasite (Bm)

Metabasite is found at the western end of the island and also in Kurumi Island. The rock in Kurumi Island occurs as small lenses within the hornblende gneiss. It is coarse-grained and massive, and mainly composed of garnet, biotite and plagioclase (An35-39).

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