

rock series, the metasediments in Ugssuit being in the almandine-amphibolite facies and the supracrustals in a lower facies although above the biotite isograd. There are lithological differences as the supracrustals found are dominantly quartzites and their derivatives, whereas the metasediments in Ugssuit are characterised by marbles, calc-silicate rocks, and gneisses of a presumably pelitic origin. The metasediments are double-folded, with varying flat-lying lineations in a flat-lying axial plane. In the supracrustals only a nearly horizontal E-W axis in folds with steep, northerly dipping axial planes, was found. The difference in character and degree of migmatisation could also be noted.

The use of GGU helicopters made it possible to map the inland area south of Nordre Strømfjord and a structural cross-section, based on the mapping of a broad belt at 1:50 000, was established. This mapping and also a reconnaissance flight served a ground control for photogeological interpretation. The large, very regular, open synforms east of Tiggait tasiat (Noe-Nygaard & Berthelsen, 1953) appear to be made up of complex triple-folded metasediments with large-scale isoclinal folds. The cores of the late large synforms are made up of hypersthene gneisses.

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FIELD WORK ON MARBLE AND CALC-SILICATE ROCKS IN THE NORDRE STRØMFJORD REGION

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As a member of the group working in the Agto-Nordre Strømfjord area (see Bondesen, this report) the writer studied and collected from the extensive outcrops of marble and associated calc-silicate rocks which occur in the region, especially around Nordre Strømfjord. Ramberg (1949) divided the Nagssugtoqidian fold belt in this region into the Isortoq Complex and the Egedesminde Complex, the first characterised by granulite facies metamorphism and the latter by amphibolite facies. K. Sørensen (personal communication) has indicated that a metamorphic gradient exists in the Isortoq Complex from the north to the south in the western part of the Agto sheet area, as seen by the increasing amount of orthopyroxene in the basic

rocks. The field data obtained on the calcareous rocks can be correlated with this scheme although a detailed study is necessary.

The calcareous rocks occur in horizons with a thickness varying from less than 1 m to about 30 m. Due to the pronounced difference in competency between the marbles and the surrounding gneisses, the structure is very complicated. Structural discordances at the contacts are frequently met with.

In the granulite facies terrain around the outer part of Nordre Strømfjord the calcareous rocks have a marginal zone 5-20 cm thick in which partly serpentinised forsterite becomes increasingly plentiful towards the contact. Furthermore, mostly situated between the forsterite zone and the country rock, a light green diopside \pm scapolite rock is found, frequently with convex borders towards the latter. This diopside rock at many localities is veined and brecciated by coarse-grained quartzofeldspathic material, often allanite-bearing. The mineral paragenesis of the marble within the horizons in this same area is: white calcite + phlogopite + forsterite \pm plagioclase \pm chondrite \pm spinel \pm fluorite \pm apatite \pm graphite. The amount of silicate minerals varies. In places pure, white marble is found, but the most common type has an estimated content of silicate minerals of 10-25%. Horizons of a more or less perfectly boudinaged diopside \pm scapolite rock, probably of sedimentary origin, are often found, as well as inclusions of other calc-silicate rocks surrounded by different zones of silicate minerals as in the marbles.

In the inner parts of Nordre Strømfjord, where amphibolite facies conditions prevail, a reddish brown garnet is found in the marble and the diopside \pm scapolite contact rock is frequently surrounded by a thin zone dominated by a black amphibole.

In the Ataneq fjord to the north of Nordre Strømfjord and on some skerries in the north-western part of the Agto sheet area, garnet has not until now been found in the marbles, but the diopside \pm scapolite contact zone is thicker and also here accompanied by a zone of black amphibole. In various places this rock has been very mobile because it is seen intruding as thin irregular dykes, cutting the foliation and the structures in the surrounding gneisses.

In the two last mentioned of the areas investigated lenses and layers of a usually coarse-grained rock, consisting of salmon-pink calcite \pm green diopside \pm purple fluorite, are found. As this always occurs in unfolded shear zones in the marble or at the contact to the surrounding rocks, the formation of this rock seems to be a rather late event.

The marbles described, showing the different contact parageneses, bear many similarities to the calcareous rocks from the Grenville Province, described by Shaw et al. (1963).

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