

EVOLUTION OF PYROXENES AND PLAGIOCLASE COMPOSITIONS DURING CRYSTALLIZATION OF THE MAGNETITE GABBRO IN THE WEST PANSKY TUNDRA LAYERED INTRUSION, KOLA PENINSULA, RUSSIA

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The Early Proterozoic West Pansky Tundra intrusion is a large layered intrusion (80 km²) located in the central part of the Kola Peninsula, NW Russia. Magnetite gabbro are common in the central part of the intrusion which is composed mostly of massive gabbro-norites of gabbroic and gabbro-ophitic textures. They occur at three levels of the central part - lower, middle and upper. Magnetite gabbro build up layers and lenticular bodies ranging from 20 to 100 m in thickness and from hundreds of meters to 10 km in length. There exist three opposing points of view on the origin of magnetite gabbro: (i) xenoliths of highly recrystallized volcanic rocks, (ii) late intrusive bodies - sills, (iii) syngenetic late-stage product of interchamber crystallization of the parental magma. Phase, modal and cryptic layering proved to be characteristic of the transition from surrounding gabbro-norites towards bodies of magnetite gabbro. The transition is gradational. The gabbro-norites of gabbroic and gabbro-ophitic textures (pabC) grade into gabbro-norites of a poikilitic texture (paCb, pabC), and the latter are replaced by gabbro-norites with inverted pigeonite (pab#C), grading into the magnetite gabbros with inverted pigeonite (pab#mC). Pyroxene thermometry shows that temperature of the rock crystallization decreases progressively from 1031-1056°? to 797-894°? in this direction. The results of investigation are consistent with the hypothesis that magnetite gabbro is a late-stage product of interchamber crystallization of the parental magma.