

CONTACT METAMORPHISM CAUSED BY THE PEIXE ALKALINE COMPLEX, BRAZIL

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The Peixe Alkaline Complex, Tocantins, Brazil, crystallized ca. 1.4 Ga. It is constituted by myaskitic nepheline syenites and intruded rocks of Serra da Mesa Group generating aureole of contact metamorphism. The contact metamorphic rocks occur close to the borders of the complex and as xenoliths within the syenite. Schists and quartzite were transformed in fine to coarse grained rocks (crystals up to 40 cm. long). The observed paragenesis is sillimanite, cordierite, quartz, phlogopite, kyanite, plagioclase and Fe-Ti oxides. Kyanite appears as corroded grains overgrown by sillimanite crystals. It is suggested that kyanite crystallized during the regional metamorphism that affected the Serra da Mesa rocks, previous to the intrusion. Some schist xenoliths present a preserved crenulation cleavage which attests the pre-metamorphic character of the Serra da Mesa rocks. No andalusite was observed, although fluid inclusion data on pegmatitic corundum crystals suggests low pressures, between 2 and 3 kbar. Nevertheless, sillimanite seems not to be crystallized from the muscovite breakdown reaction, as muscovite is still present in large amounts and no K-feldspar is observed. Sillimanite seems to have crystallized by the polymorphic reaction $\text{kyanite} = \text{sillimanite}$, which requests minimum conditions for the contact metamorphism of 4 kbar and 500°C.