

HERCYNIAN RAPAKIVI-LIKE ASSOCIATION IN THE MARGIN OF PROTEROZOIC TARIM CRATON, SOUTH TIEN-SHAN, KIRGIZSTAN

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Late Palaeozoic collision (about 320Ma) of Caledonian Kazakh palaeocontinent and Proterozoic Tarim craton was followed by post-collisional granitoid and alkaline complexes generally emplaced within Tarim palaeoshelf zone and in direct contact with Proterozoic Tarim gneisses. Granitoid association includes about 25 intrusions that have been studied along the northern margin of Tarim craton (500x150 km). According to ages and geochemical characteristics the granites are divided into three groups. Batholiths of wiborgite-type granites with minor monzonites, formed around 310Ma, are associated with coeval alkaline complexes and host subeconomic Au-As mineralization. Intrusions of leucogranites with occasional pterlitic textures formed within 285-275Ma time interval. Gabbroic dikes with local evidence of hybridisation cut leucogranites in the western part of the region. Small stocks of the most evolved granites including topaz-bearing varieties formed around 265Ma. Leucogranites and topaz-bearing granites host several economic greisen-type Sn deposits. Geochemically all three groups exhibit characteristics of A-type granites and show marked similarities with Proterozoic rapakivi granites in the Fennoscandian shield. The closure of Hercynian palaeocean with subsequent collision between thick Proterozoic Tarim craton and less thick Caledonian palaeocontinent probably led to temperature increase and fluid infiltration at cratonic Moho which could induce delamination of the continental lithospheric mantle of craton. Hot asthenospheric material propagating along cratonic Moho induced very rapid switch to post-collisional alkaline and subalkaline magmatism contaminated by lower crust. Thus, a genetic link between Hercynian rapakivi-like granitoid association and Proterozoic crust of Tarim craton is not precluded.