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# THE "TECTONIC" NATURE OF THE EASTERN MARGIN OF THE BAROTIYA GROUP, RAJASTHAN INDIA: A REAPPRAISAL

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The polydeformed volcano-sedimentary rocks around Barr, Pali district Central Rajasthan, belong to the Barotiya Group (BG) and constitute the westernmost package of the Delhi Supergroup (DSG) within the South Delhi Fold Belt (SDFB) (Gupta 2004). The eastern and western boundaries of BG are high strain zones. The steep plunges of the lineations within BG are unique within the rocks exposed elsewhere within the DSG. Along the eastern margin, a thin marble band, named Nandna Marble (NM) separates BG from its immediate neighbour Sendra Group (SG) (Dasgupta et al., 2012). The NM sandwiched between the BG and SG holds the key to the understanding of the mechanics of juxtaposition of the two rock sequences and therefore is the purpose of the present study. NM is a laminated fine grained marble showing evidence of mylonitisation. Tectonic inclusions of biotite, muscovite, quartz, epidote, sphene and rock fragments are present within NM. The micro-banding within NM is composed of alternating bands of finer and coarser grained carbonates. The relatively coarser carbonate grains show deformation twins and lack a definite grain boundary. The calcite crystals show different types of e-twin morphologies: thin, straight twin (type-I), thick, straight twin (type-II) and a few curved thick twin (type-III) following Ferril et al (2004). Thin lenses of micaceous quartzites associated with Nm also show evidences of crystal plastic deformation. Syn-tectonic veins of coarser carbonates and quartz re emplaced within NM which rotate with the progressive deformation the entire rock package of BG was subjected to (Dasgupta et al., 2012). It is therefore interpreted that Nm lies within a high strain zone and is a calcareous mylonite. NM was probed through FE-SEM for an EBSD analysis using OIM 5.1 version software. Grain boundary and grain orientation spread maps were prepared to delineate the boundaries of the different twin sets across the grains. The c-axis has a bimodal distribution along a plane whose orientation is 63o / 57o SE. Equal area projection of the e-twins measured shows a vertical conical distribution with a semi-apical angle of 45o. The twin plane thicknesses were measured and twin intensity was calculated from which a moderate-temperature high-stress deformation is postulated.

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