The Phulad shear zone and transitional wall rock structure at the western margin of the middle Proterozoic Delhi mobile belt of Rajasthan, India.

HAZRA,SUGATA, Department of Geological sciences, Jadavpur University, Calcutta – 700 032, India

The Phulad Shear zone demarcates the westernmost boundary of the middle Proterozoic Delhi mobile belt in Rajasthan, India. An ensemble of amphibolite, impure marble, metapellite , and granite gneiss constitute the shear zone and the wall rocks. A relict granulite facies metamorphism (Opx+Cpx+Grt+Pl, or, Sil+Ky+Qtz, or, Bt+Grt+Sil+Or.) can be deciphered from the otherwise low temperature , low pressure epidote -amphibolite facies rock assemblage. The hanging wall rocks of the east exhibit three generations of regional folds. The earliest NW – SE reclined folds are refolded by upright NE – SW folds. The last phase of folds are oriented E-W, transverse to the orogenic trend. There are planer, nonplaner and refolded sheath folds of different generations within the shear zone. The fold sequence of eastern wall rocks has also been replicated within the shear zone. The dominant stretching lineation is parallel to the hinge line of the earliest reclined folds, and is deformed subsequently by all later folds. The lineation which is down dip within the shear zone changes its attitude to 50^{0} on the hanging wall rocks of the east. The lineation patterns indicate an extreme stretching, much in excess of 6000 percent elongation. The structure of the wall rocks are transitional to that of the shear zone and indicate a much lower intensity of deformation.