Journal of Structural Geology 32 (2010) 877

Contents lists available at ScienceDirect

Journal of Structural Geology

journal homepage: www.elsevier.com/locate/jsg

Photograph of the Month

Photograph of the Month: Domino-type faults in the Chottanagpur Gneissic Complex, India

Photograph Santanu Misra. © Santanu Misra.

This is a vertical section of a foliated granite body in the Chottanagpur Gneissic Complex, exposed in Ayodha Pahar, Purulia district, India (86°08′11.55″ E, 23°16′49.75″ N). A set of parallel faults have developed in a foliation-parallel amphibolite dike, forming a domino-like structure. The faulted blocks are separated by thin quartz veins. Disruption of a quartz vein, running parallel to the dyke shows that the blocks are also mutually offset. The offset pattern reveals normal faults (on the left side) grading laterally to reverse faults (on the right side). The domino-type normal faults developed under layer-parallel horizontal extension, and the fault blocks rotated clockwise about horizontal axes, causing offsetting of the quartz vein. The faulted dyke possibly then underwent through later horizontal contraction, resulting in counterclockwise rotations of some fault blocks (right side) about the horizontal axis. This rotation has resulted in steepening of fault dips, involving thrust slip on the faults, as reflected from the offset of the quartz vein (on the right side). The amounts of counterclockwise rotations of the fault surfaces increased in the vertically upward direction, which probably resulted to their curved geometry.

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11 October 2008
Available online 18 April 2009

0191-8141/$ – see front matter
doi:10.1016/j.jsg.2008.10.016