

Merguerian, Charles; and Schweickert, R. A., 1980, Superposed mylonitic deformation of the Shoo Fly Complex in Tuolumne County, California.

Mylonitic rocks of the Shoo Fly Complex underlie a 10 km wide terrane of amphibolite grade quartzitic and granitic gneisses in the west-central foothills of the Sierra Nevada. The terrane is intruded to the east by the Mesozoic Sierra Nevada Batholith and to the west is in thrust contact with east-dipping rocks of the Calaveras Complex. The thrust-related mylonitic structures transpose and recrystallize both an older pre-Calaveras mylonitic fabric (S_1), and discordant granitic augen gneisses in the Shoo Fly. The thrust fabric is characterized by two (progressive?) phases of fold (F_2 , F_3) With penetrative mylonitic fabrics axial planar to isoclinal folds, eye-folds, rootless, intrafolial and shear folds; locally thick black mylonitic domains are developed. The augen gneisses represent a pre-thrusting plutonic episode. The composite regional schistosity of the Shoo Fly Complex is folded by an E-plunging antiformal, crenulate fold (F_4) with steep to vertical, E-W axial surfaces defined by crenulation cleavage, spaced foliation, or black residue cleavage of biotite and opaques. The F_4 folds predate the mid-Jurassic Standard pluton. A mafic dike swarm that postdates these structures was intruded along S_4 axial surfaces during or following crustal dilation. All of the preceding structural features are cut by a $N20^\circ W$ to $N20^\circ E$ steep to vertical cleavage (S_5 -Late Jurassic), which is now traceable into open and conjugate folds (F_5), and a younger $N60^\circ W$ to E-W vertical cleavage (S_6 -Cretaceous). The recognition of superposed mylonitization along the Calaveras-Shoo Fly thrust indicates that upper plate Shoo Fly rocks record a more complex, earlier structural history than the lower plate Calaveras rocks.

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