

Merguerian, Charles; and Sanders, J. E., 1995g, Late syn-intrusive clastic dikes, contact relationships and xenoliths at the base of the Palisades intrusive sheet, Fort Lee, NJ imply a shallow (~3 to 4 km) depth of intrusion and NE-directed paleoflow of the Palisades magma.

The world-renowned Palisades intrusive sheet is continuously exposed along the east edge of the Newark Basin from Haverstraw, New York southwestward to Staten Island, NYC where a possible feeder exists. In Fort Lee, xenoliths, screens, and chaotic clay-rich- and sandy Lockatong strata have been folded and metamorphosed and have generated late syn-intrusive "clastic dikes and irregular apophyses" that crosscut the igneous/sediment interface. Apparently, during- and immediately following initial cooling of the marginal chilled zone of the Palisades magma, but before they had been lithified, the Lockatong was heated and mobilized as cohesionless sediment. In addition to the clastic dikes, vesicles, pipe amygdalae, and brecciated chilled-margin facies of the Palisades suggest that the mafic magma was intruded at relatively shallow depths (roughly 3 to 4 km) where the overburden had not yet caused dewatering and lithification.

The basal contact of the Palisades sheet cuts across the bedding in a ramp-like fashion toward the northeast. Folded xenoliths and folds of Lockatong sedimentary strata below the igneous contacts invariably are products of subhorizontal shear. Their steep-, overturned-, and recumbent axial surfaces trend E-W and vary from steeply dipping to subhorizontal. These marginal relationships suggest that paleoflow of the magma was from SW to NE.

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