

Undulatory Silver-Rich Polymetallic Veins of the Castrovirreyna District, Central Peru: Fault Growth and Mineralization in a Perturbed Local Stress Field

JAMES M. WISE[†]

Department of Geological Sciences, University of Nevada-Reno, Reno, Nevada 89557

Abstract

Strongly undulatory silver veins of the Castrovirreyna district, central Peru, formed in a dilatant, anastomosing, low-displacement, left-lateral fault system during late-Miocene, east-west-directed compression. The steeply dipping veins have multiple orders of undulations, as seen in map view, and underground mines expose strong dip reversals. Kinematic indicators from the east-northeast- to west-northwest-striking veins record mainly left-lateral slip and lesser oblique-reverse slip. These striation data, considered along with vein intersection angles and map patterns, indicate that the veins did not form as a simple conjugate fracture set. The preferred interpretation is that the curved fracture growth and complex slip distributions developed because of local stress-field modifications by the propagating faults and dilating vein segments during regional east-west-directed compression. Variably oriented fault striations, compound displacement profiles, and multiple scales of vein curvature are all characteristics of stress interaction between subparallel veins. Veins possessing these features may be expected to host ore shoots with a complex geometry that depends not only on local accommodation space produced at dilatant jogs, but also on the proximity to other veins and changing slip directions.

[†] E-mail, jimxoso@yahoo.com