"Durchbewegung" texture: what is it and does it occur in massive sulphide deposits of the Bathurst Mining Camp?

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The German words "durch bewegung" literally mean 'by movement/motion' in English, and the term "durchbewegung" texture (or structure/fabric) has been applied to mixtures of silicate and competent sulphide clasts (commonly rounded) in a matrix of less competent sulphides (typically pyrrhotite and chalcopyrite). Rock exhibiting this texture, "durchbewegt", has been interpreted to have formed by tectonic processes "involving disruption, separation, kneading, milling, and rotational movement" ever since this terminology was introduced in the 1960s. In effect, durchbewegt is a type of tectonic mélange that occurs in a shear zone within (or bounding) massive sulphides.

Mixtures of silicate clasts (typically chloritite) and sulphides (including pyrrhotite) are common in many deposits in the Bathurst Mining Camp (BMC), including Brunswick 12, Heath Steele, and Halfmile Lake. These mixtures either conformably underlie or are sub-parallel to the main sulphide mass, and have been interpreted as "transposed stringer zones", implying large-scale rotational movements and the presence of durchbewegung textures. However, such mixtures can also be formed by non-tectonic (depositional/replacement) processes and then deformed without significant rotational movement, as shown by examples from other deposits in and outside the BMC.One way to distinguish tectonically produced durchbewegt from non-tectonic silicate-sulphide-clast mixtures is to look at the bounding surfaces (margins) of these bodies. The margins of durchbewegt will show the least disruption of original texture, analogous to "broken formation" in tectonic

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mélange, progressing inward to clast separation, milling, and rotational movement at the center of the body. Conversely, the margins of bodies produced by depositional/replacement processes will exhibit similar deformation effects as their centers, i.e. deformation will be more or less homogeneous across the body because there is no strain-focusing shear zone. Most of the macroscopic sulphide-silicate-clast mixtures in the BMC do not appear to be durchbewegt.