

Kinematic Analysis of the Pocologan Mylonite Zone

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The record of ductile movement in the rocks of the Pocologan Mylonite Zone in southern New Brunswick was studied using the techniques of kinematic analysis. The record of the overprinting brittle faulting was also studied, using the techniques of brittle microtectonics analysis.

The mylonitic fabric involves (1) a strong subhorizontal stretching lineation trending NE-SW, parallel to the fault trace and the strike of the principal mylonitic foliation, C; (2) mylonitic C foliations (shear planes), and C' foliations (shear bands) dipping steeply to the SE and striking 060° and 095° respectively;

and (3) a variety of kinematic indicators indicating dextral shear in the ductile regime.

The brittle microtectonics analysis shows that most of the minor faults trending NE had dextral displacement, while most of the faults trending NNW had sinistral displacement. If this analysis is indicative of the regional stress operative during faulting, then the NE-trending Pocologan Mylonite Zone was overprinted by brittle dextral faulting. The age of mylonitization is interpreted as Early Devonian (Acadian Orogeny), and the age of brittle faulting as Carboniferous (Alleghenian Orogeny).