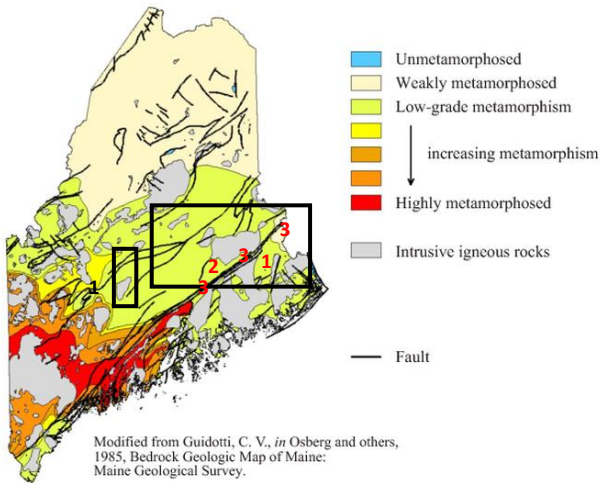


# IGNEOUS AND METAMORPHIC PETROLOGY

## Metamorphic studies



Regional metamorphic intensity in the areas I've studied is low greenschist (chlorite) to sub-greenschist grade but prominent contact aureoles around the large granitic and gabbroic plutons offer interesting metamorphic problems. These include: (1) partial melting adjacent to the Pocomoonshine mafic pluton; and (2) multiple contact metamorphic pulses in the same aureole, and fabrics in the aureole of the Bottle Lake pluton that suggest a multiple injection history for that body.

Dynamic metamorphism in the Norumbega fault system (3) occurred at or near the brittle-ductile transition, providing opportunities for numerous studies of fault mechanics and strain distribution developed in the shallow and mid-crust.

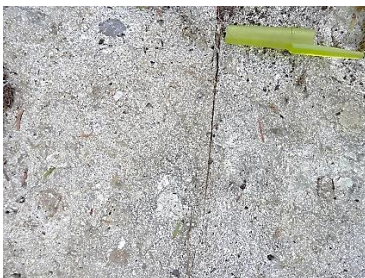
## Igneous studies

Plutons provide enough problems for generations of researchers, including: magma mixing in the Moosehorn Igneous Complex near Calais (right); evolution of small layered gabbro bodies; origin of very coarse grains in a rapidly cooled, dry? granite; multiple magmatic injection in large granitic plutons.

There's no shortage of volcanic projects either! These include identifying the tectonic environment of Ordovician ashfall and ashflow tuffs by trace element discrimination diagrams and the origin of Mn-rich iron formations currently interpreted as having formed at vents near island arcs.



Mafic enclaves in Bottle Lake granitic pluton border phase



(l) Fragmental ashflow tuff (r) Finer grained ashflow tuff with large ashfall fragment

Sheared Mn-rich iron formation interbedded with fine grained ashfall tuff

