

A SUPPLEMENTAL WINTSCH I.R.A. (INTRIGUING RETIREMENT ACTIVITIES)



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**Projects appropriate for Bob's eclectic interests:
(all well north of Connecticut)**

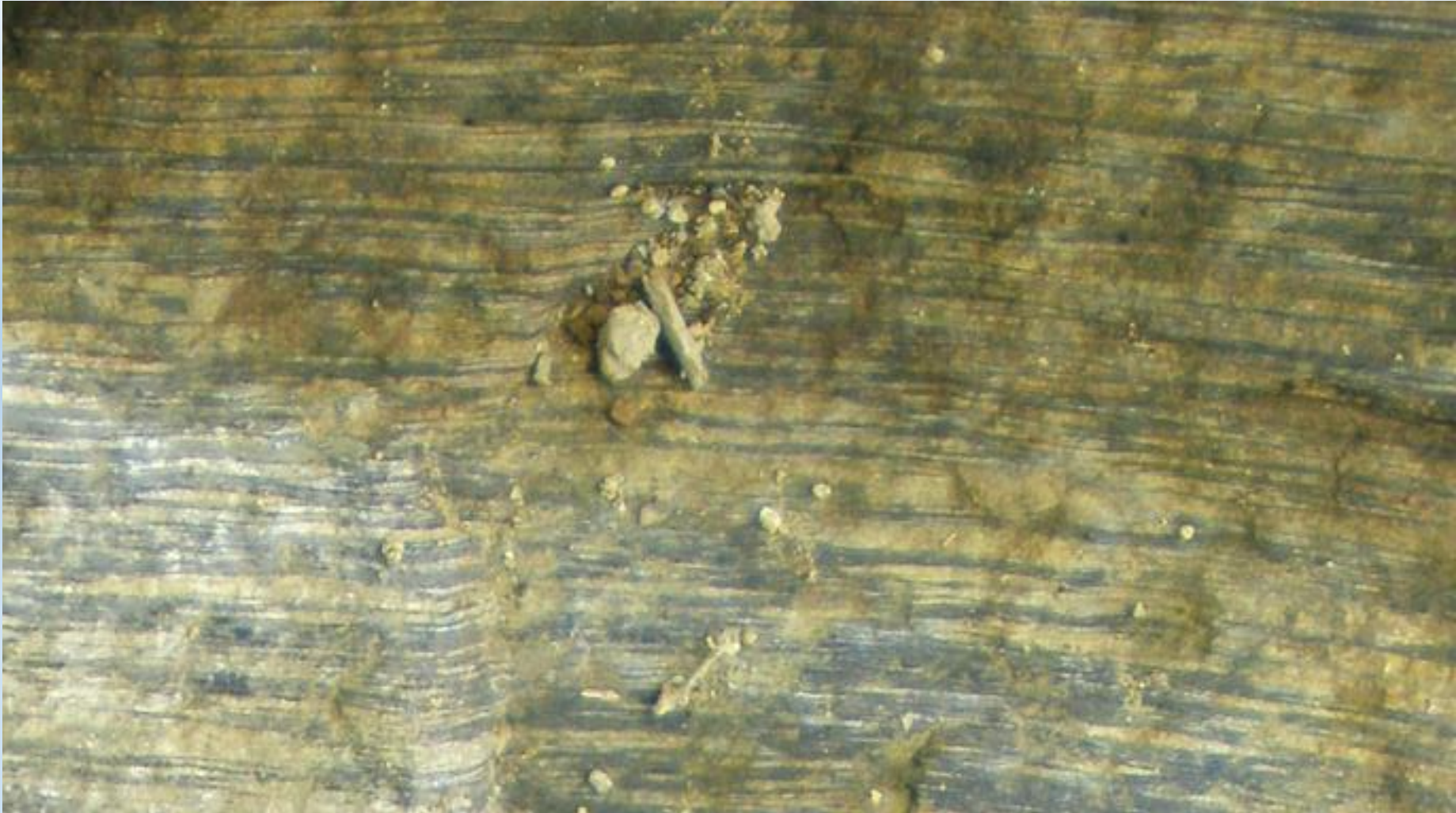
Rock mechanics/structural geology: origin of multiple generations of transposed layering at chlorite and sub-chlorite conditions.

Igneous petrology: origin of very coarse grained, *shallow crustal, rapidly cooled* granite

Tectonics 1: Segmented orogen-parallel differential uplift

**Tectonics 2: What was the tectonic setting of the Central Maine/
Aroostook-Matapedia basin?**

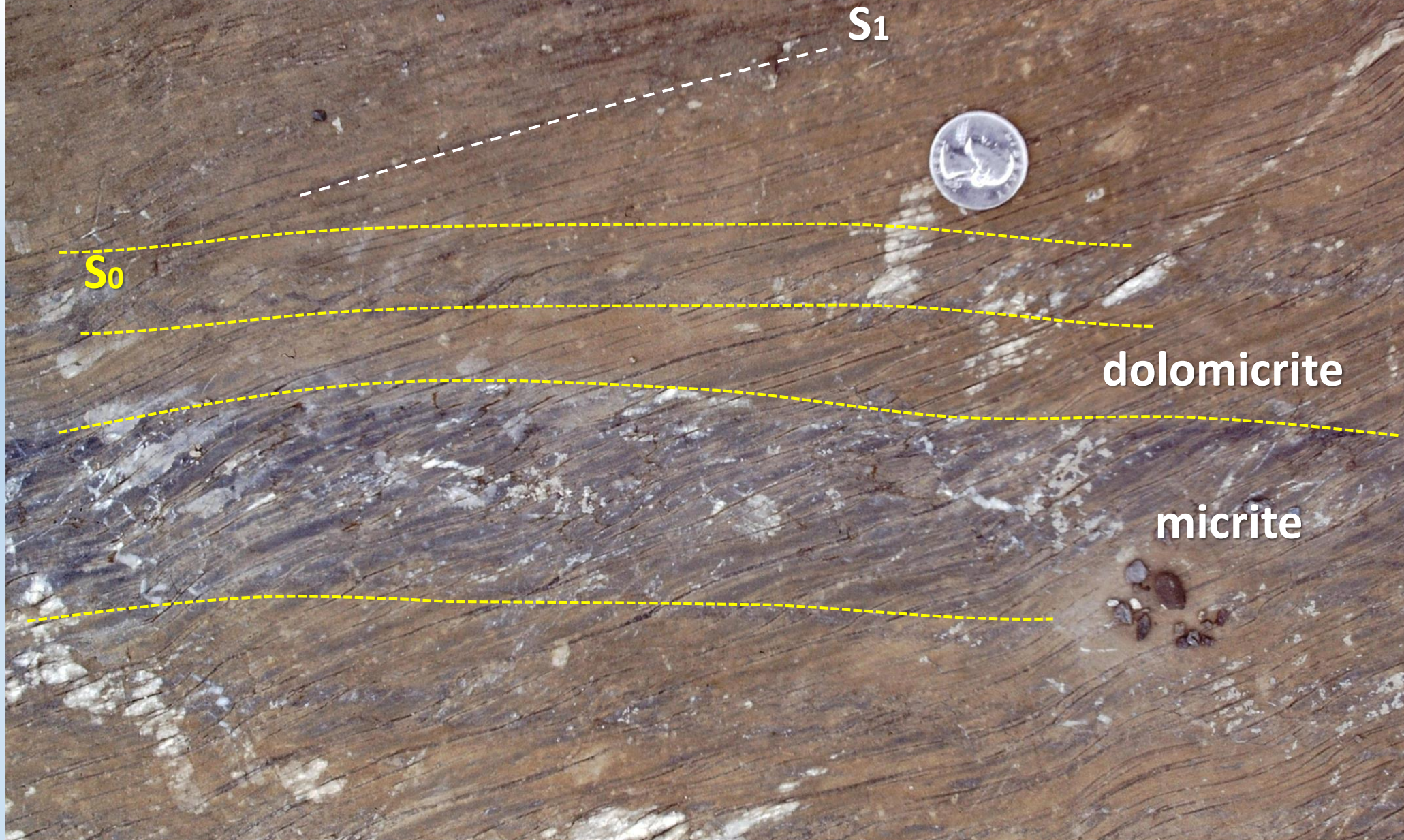
Chlorite grade silt-mud low-energy turbidites (Smyrna Mills Fm)



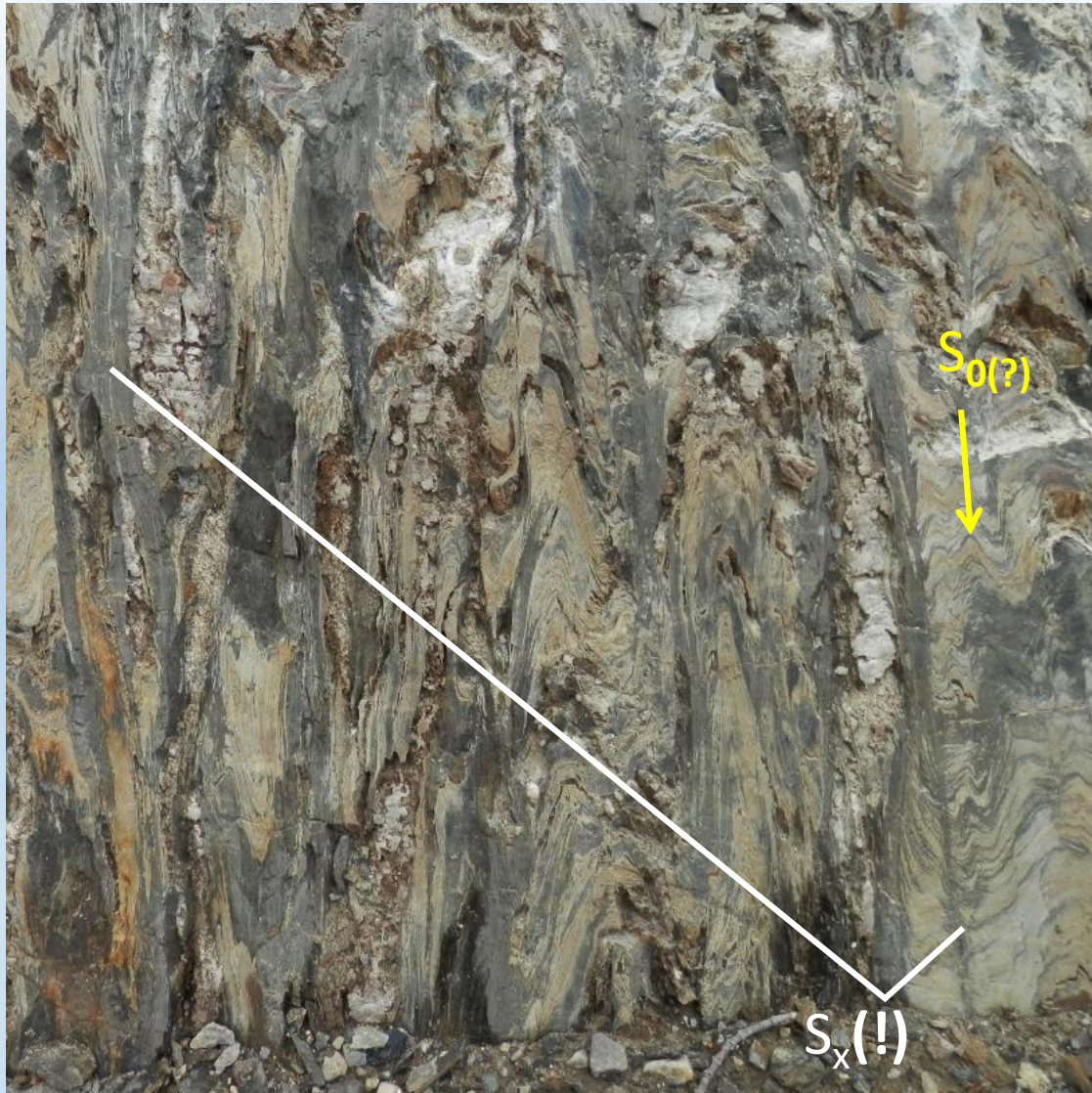
Transposition in silt-mud turbidites (Smyrna Mills Fm.)



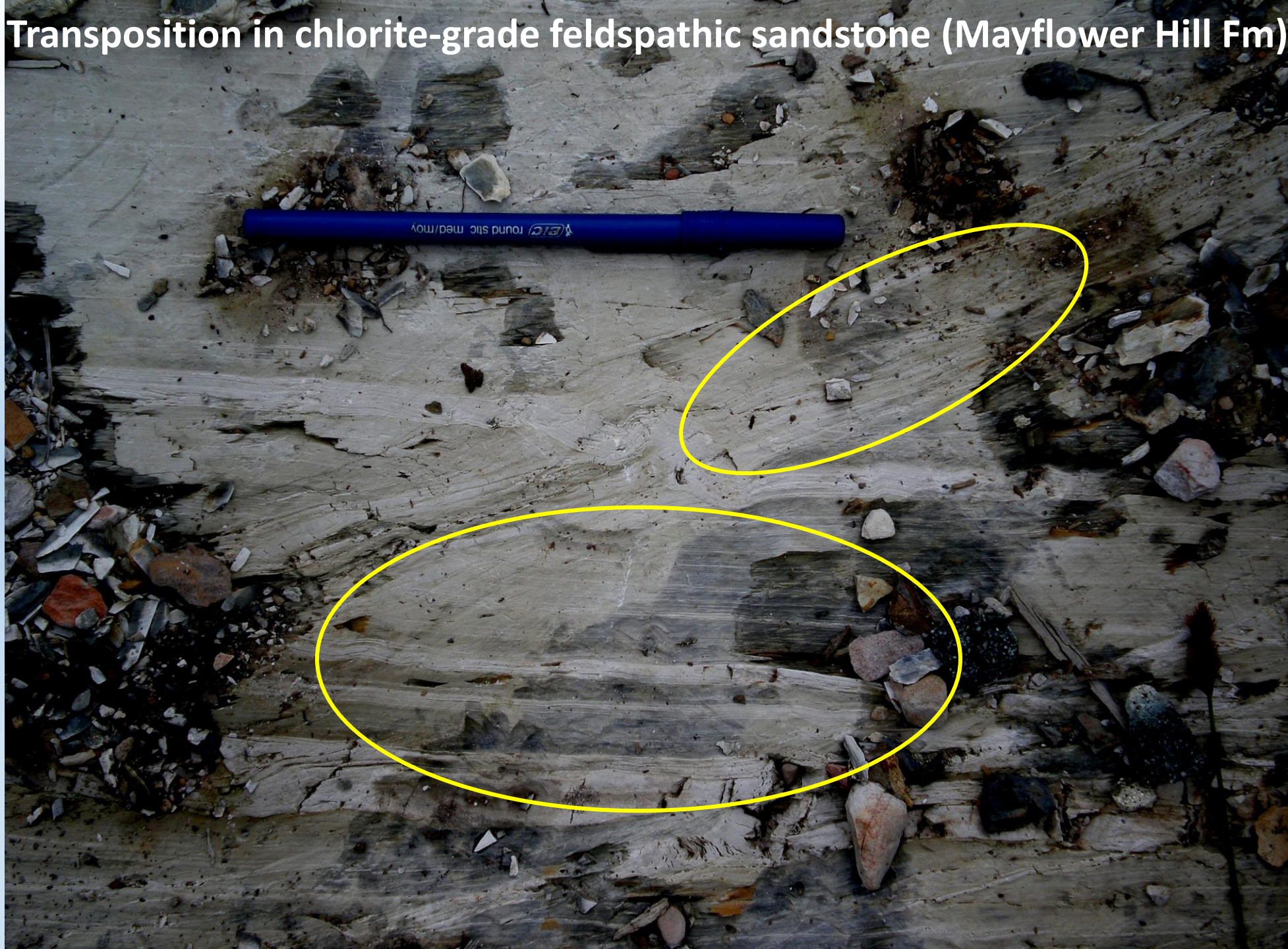
Transposition in chlorite-grade micrite-dolomicrite (Carys Mills Fm)



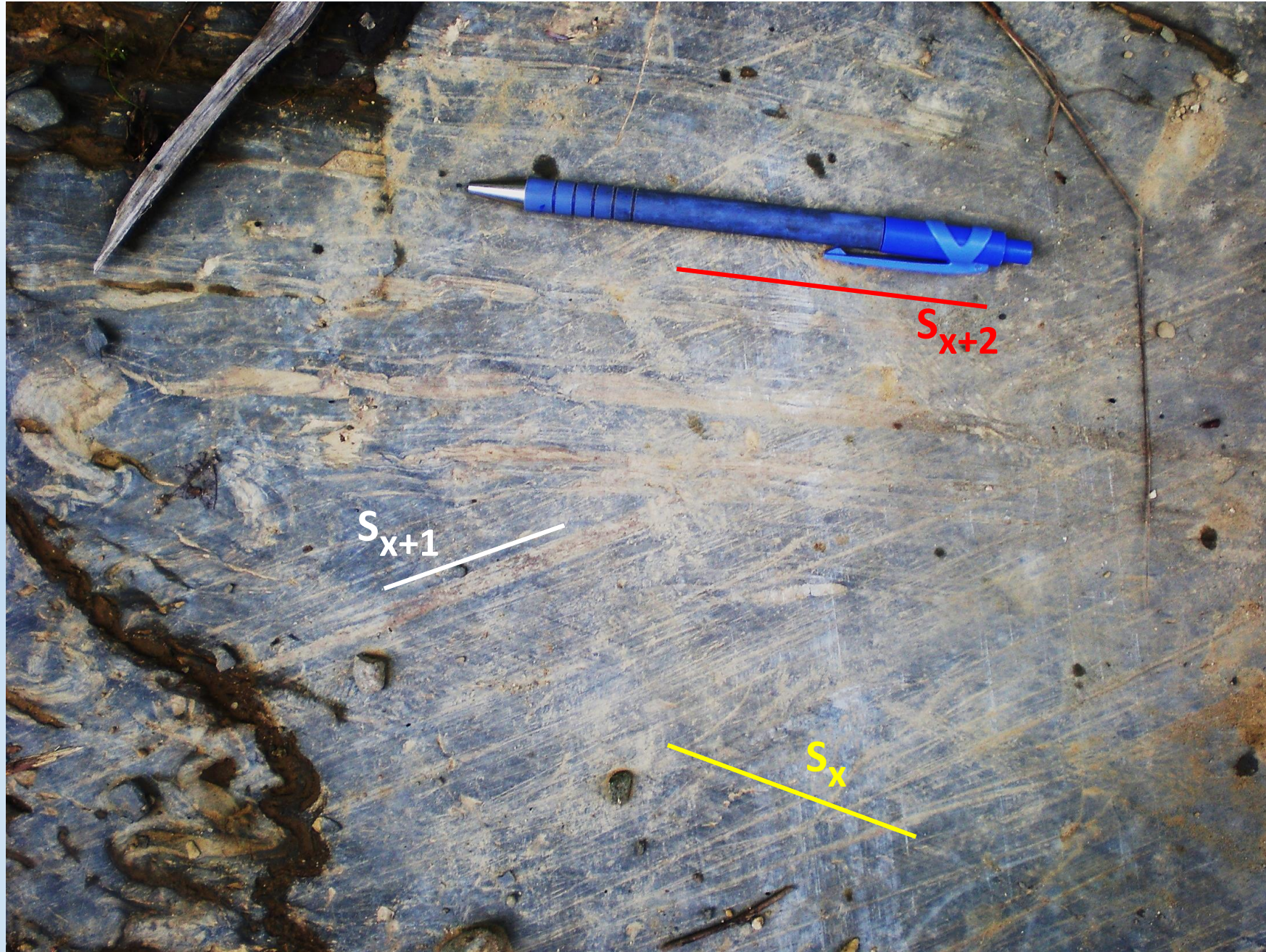
Transposition in hornfelsed micrite-dolomicrite (Carys Mills Fm)



Transposition in chlorite-grade feldspathic sandstone (Mayflower Hill Fm)



Multiple compositional layering in the Kingman shear zone (Smyrna Mills Fm.)



3 of the 4 sets
of layering

What mechanical and chemical processes and conditions produce these transposition fabrics?

Would these multiple layers be preserved in staurolite- or sillimanite-grade rocks? How would they be interpreted?

INTERESTED, BOB??

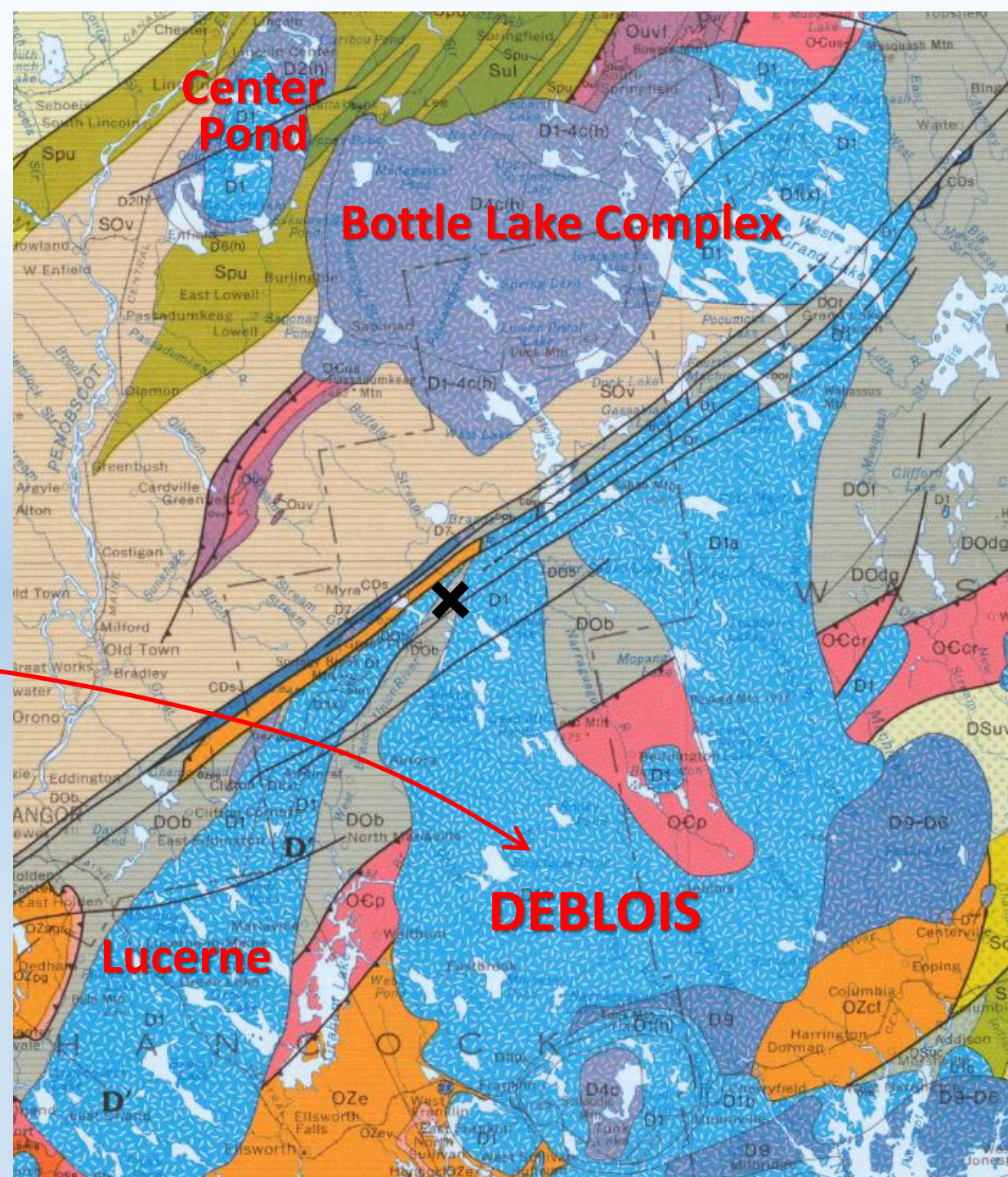
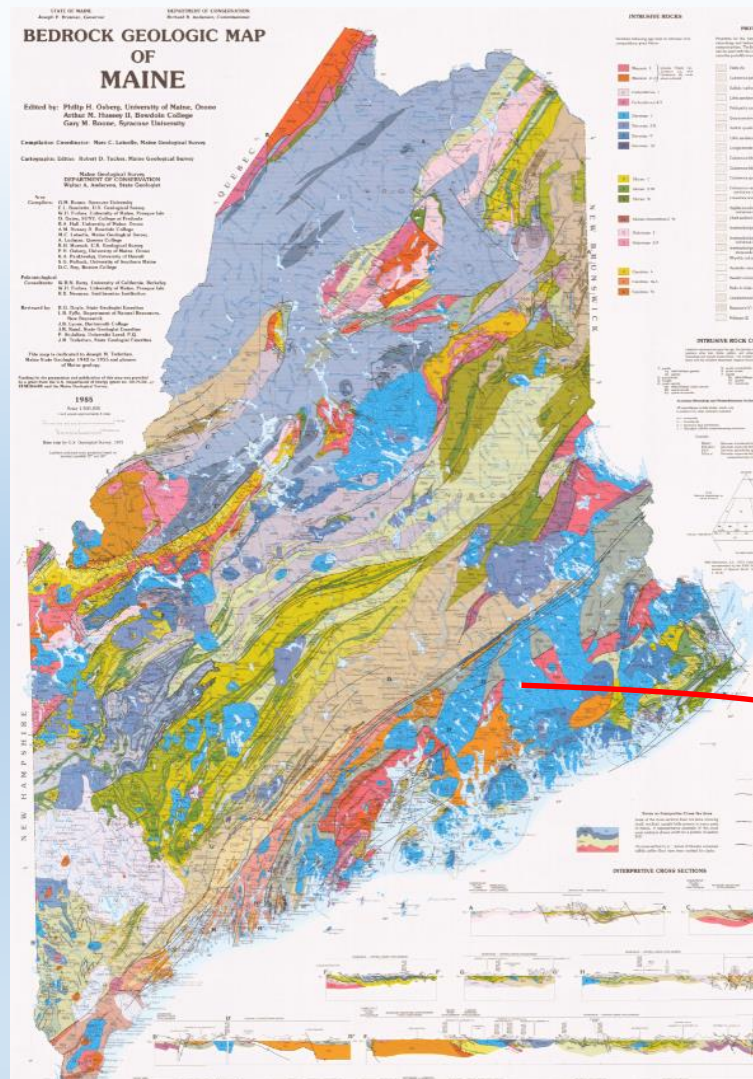
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Tectonics 1: Segmented orogen-parallel differential uplift

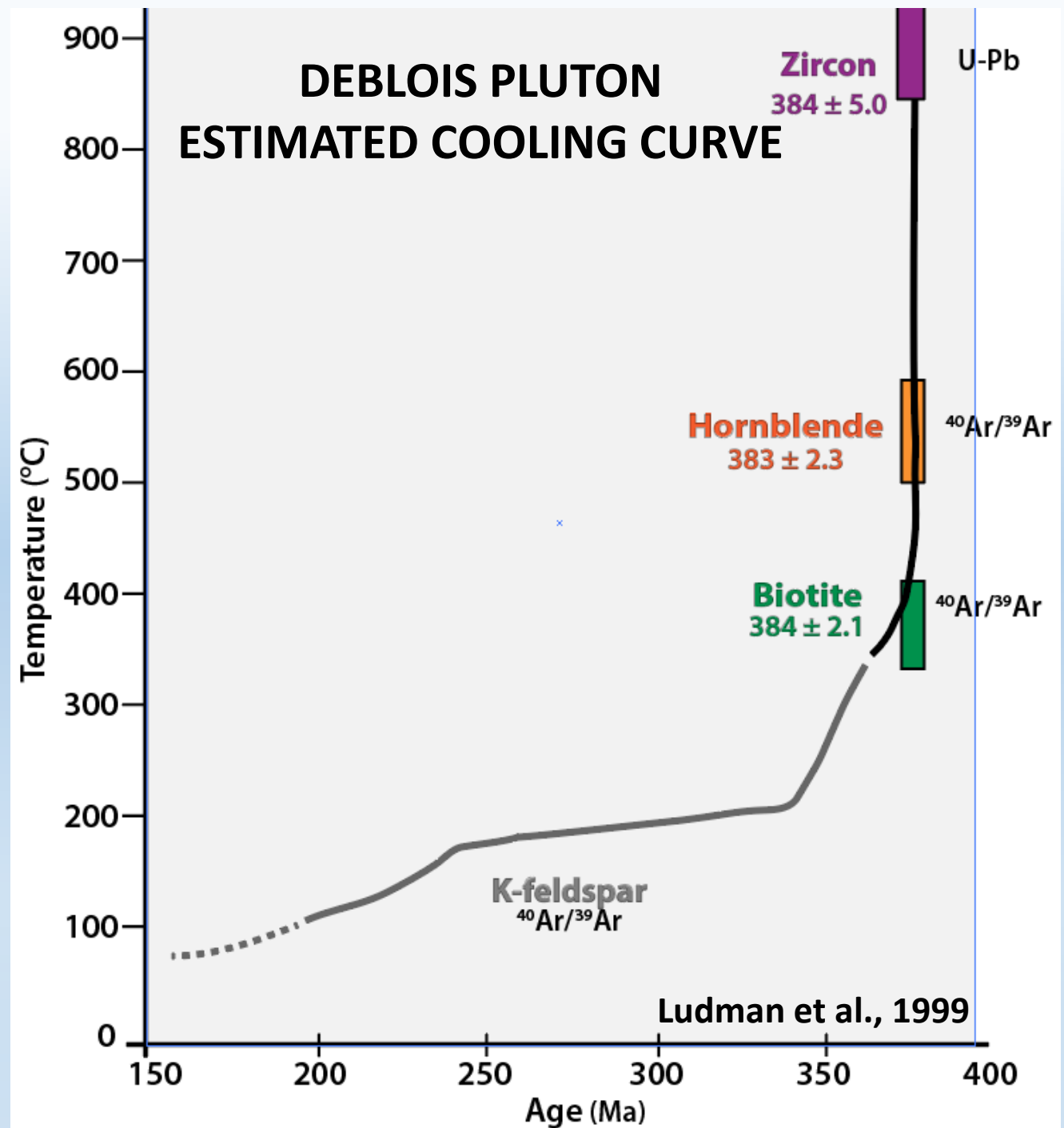
Tectonics 2: What was the tectonic setting of the Central Maine/Aroostook-Matapedia basin?







DEBLOIS PLUTON ESTIMATED COOLING CURVE



SO, BOB, WHY IS THE PLUTON SO COARSE-GRAINED?

- **The granites have normal igneous textures with no evidence that they were emplaced as a crystal mush.**
- **High fluid content is unlikely: the roof and margins of the pluton are well exposed and I've seen no signs of hydrothermal alteration, only two aplite dikes, and no pegmatites.**
- **Petrologists I've spoken with have shrugged their shoulders and said "that's interesting".**

INTERESTING ENOUGH FOR YOU TO GIVE IT A SHOT?

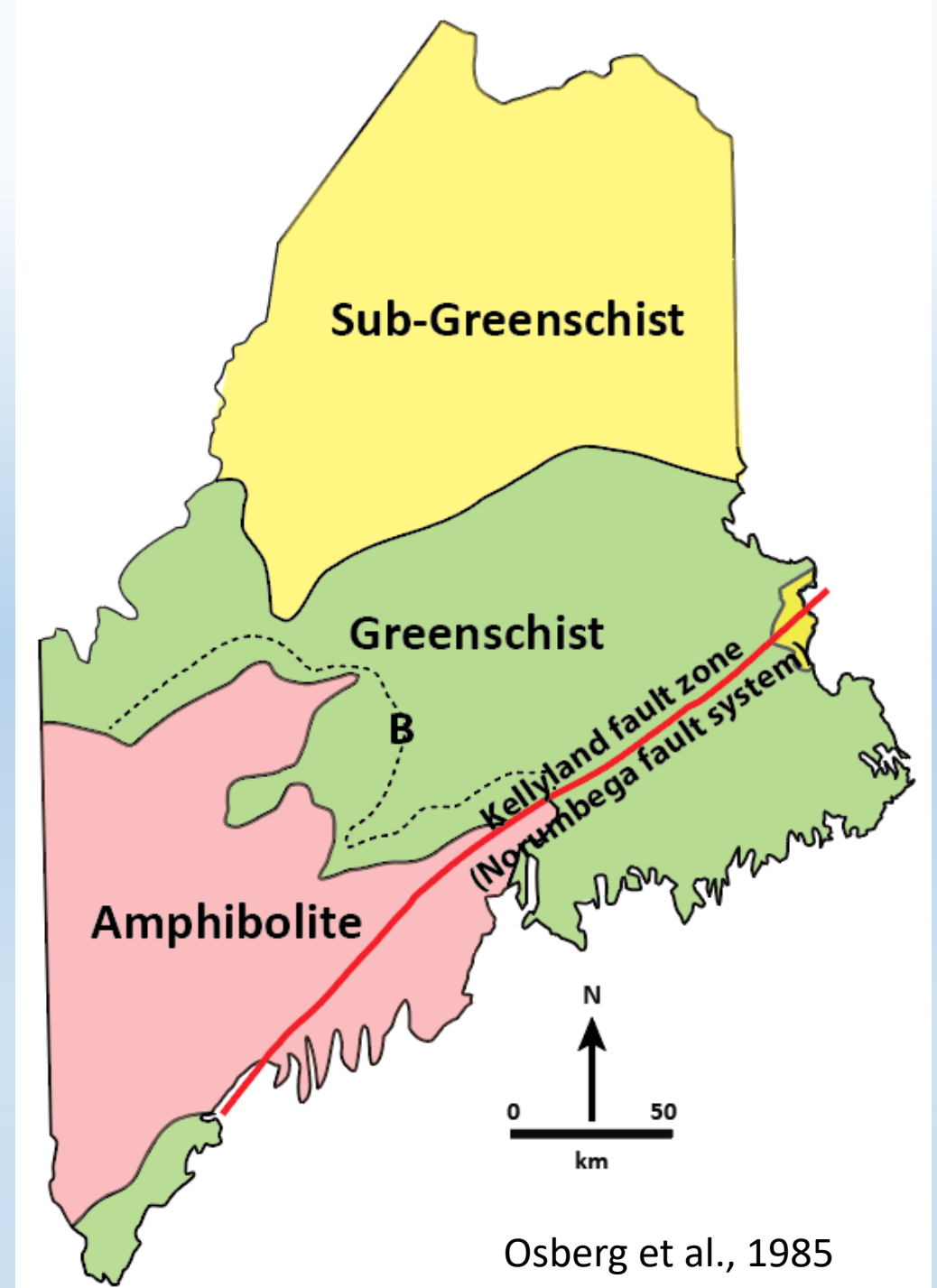
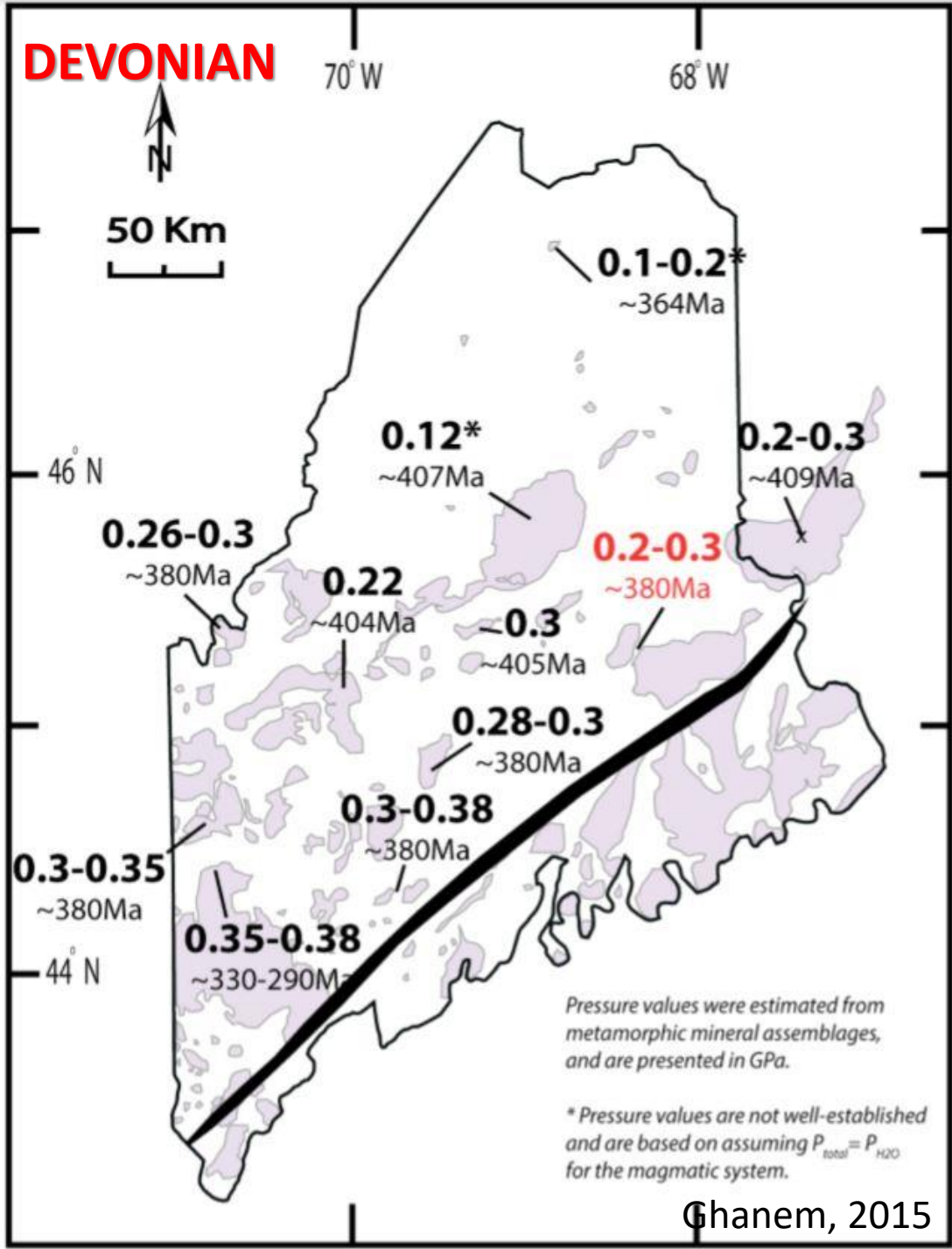
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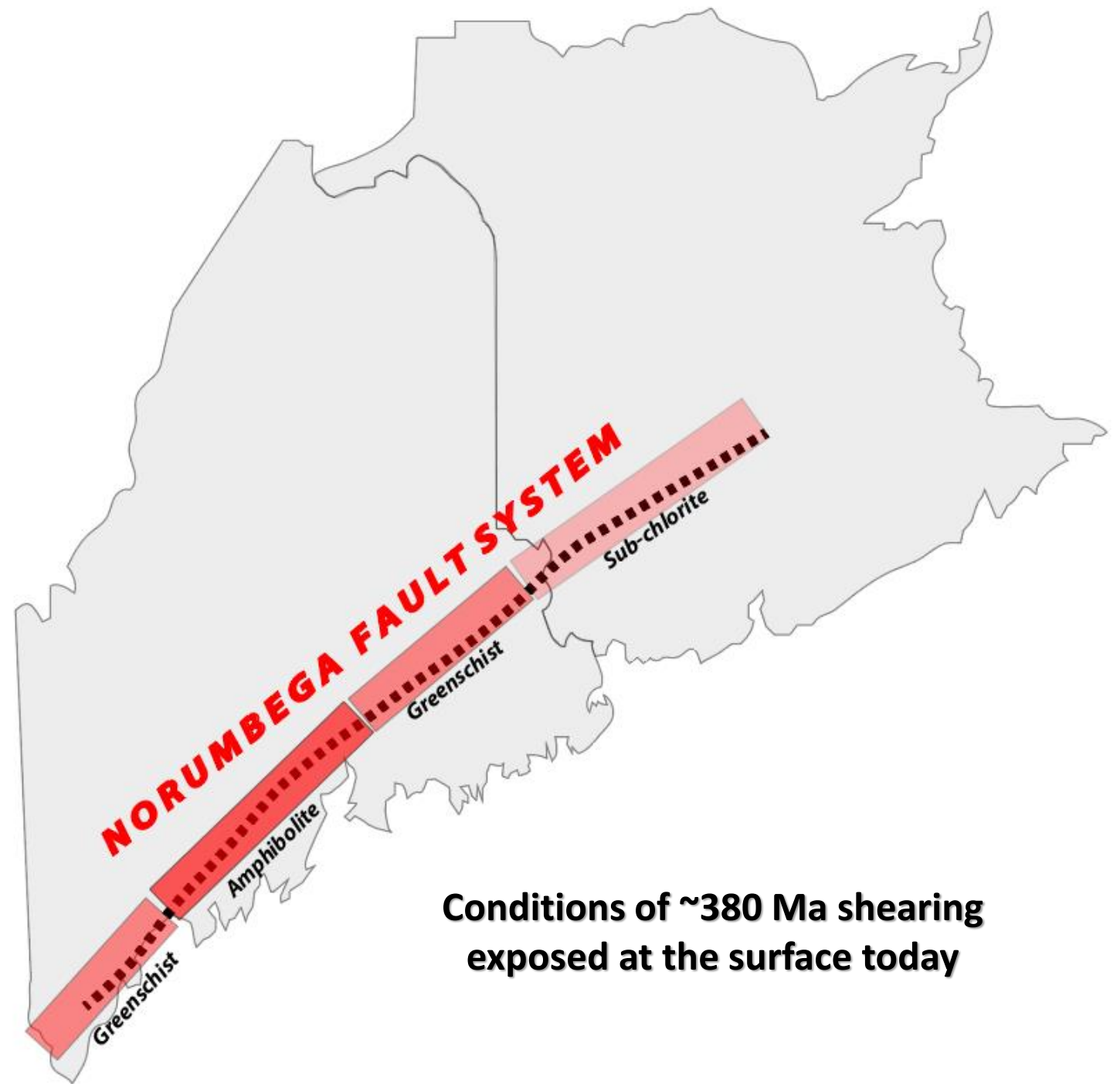
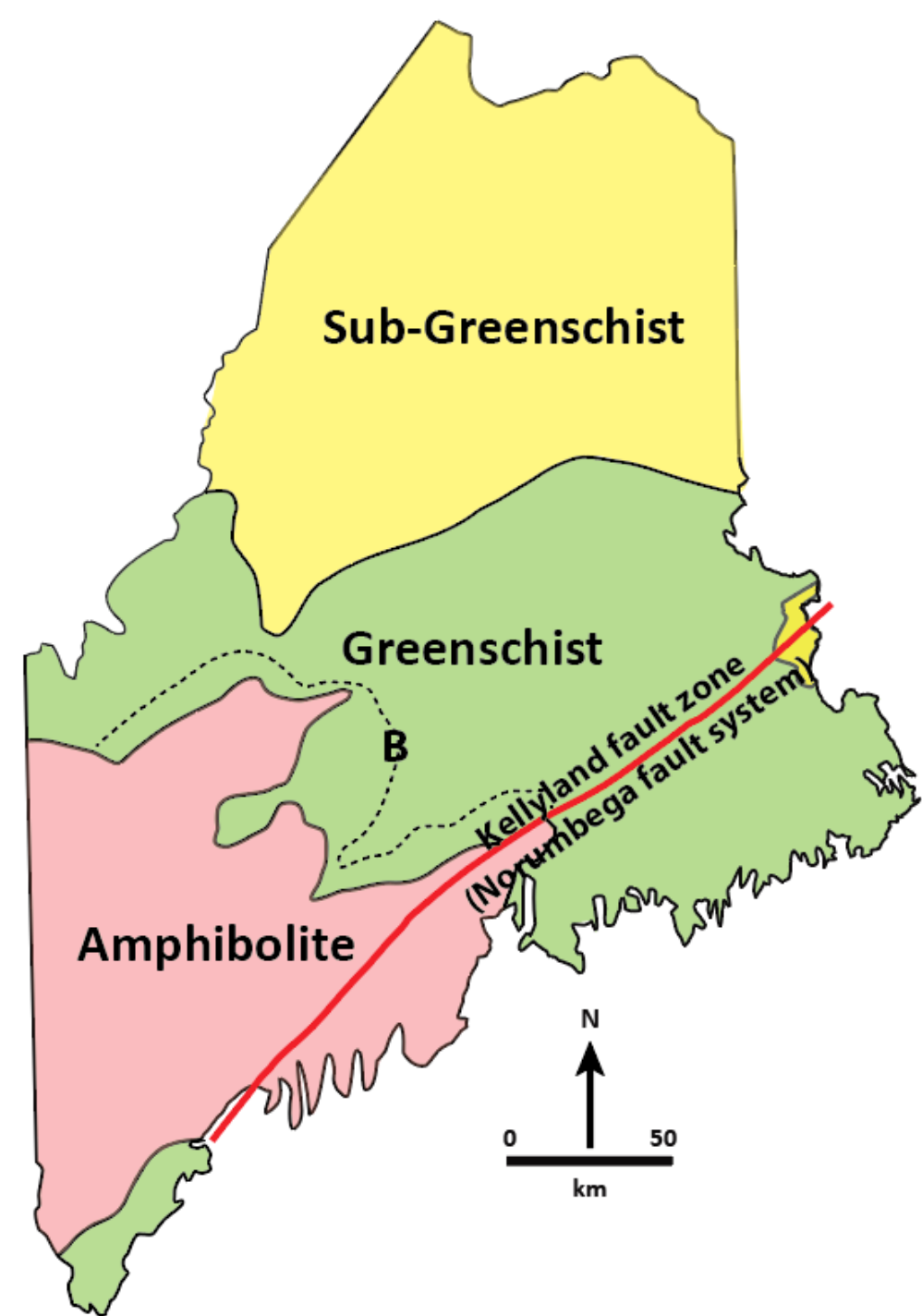
Igneous petrology: origin of very coarse grained, shallow crustal, rapidly cooled granite

Rock mechanics/structural geology: formation of multiple transposed compositional layers at chlorite and sub-chlorite conditions.

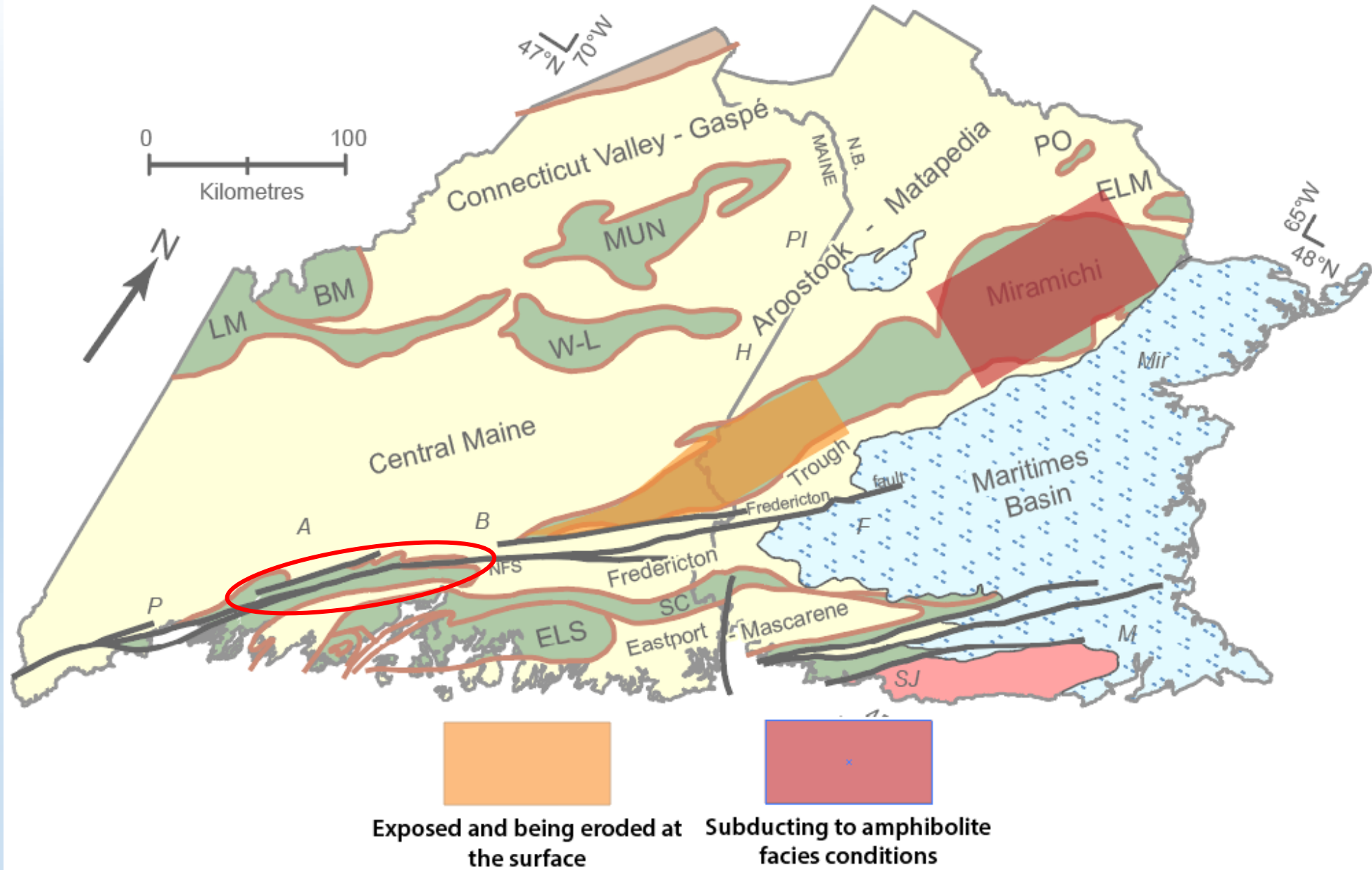
Tectonics 1: Differential segmented orogen-parallel uplift

Tectonics 2: What was the tectonic setting of the Central Maine/Aroostook-Matapedia basin?





EARLY SILURIAN



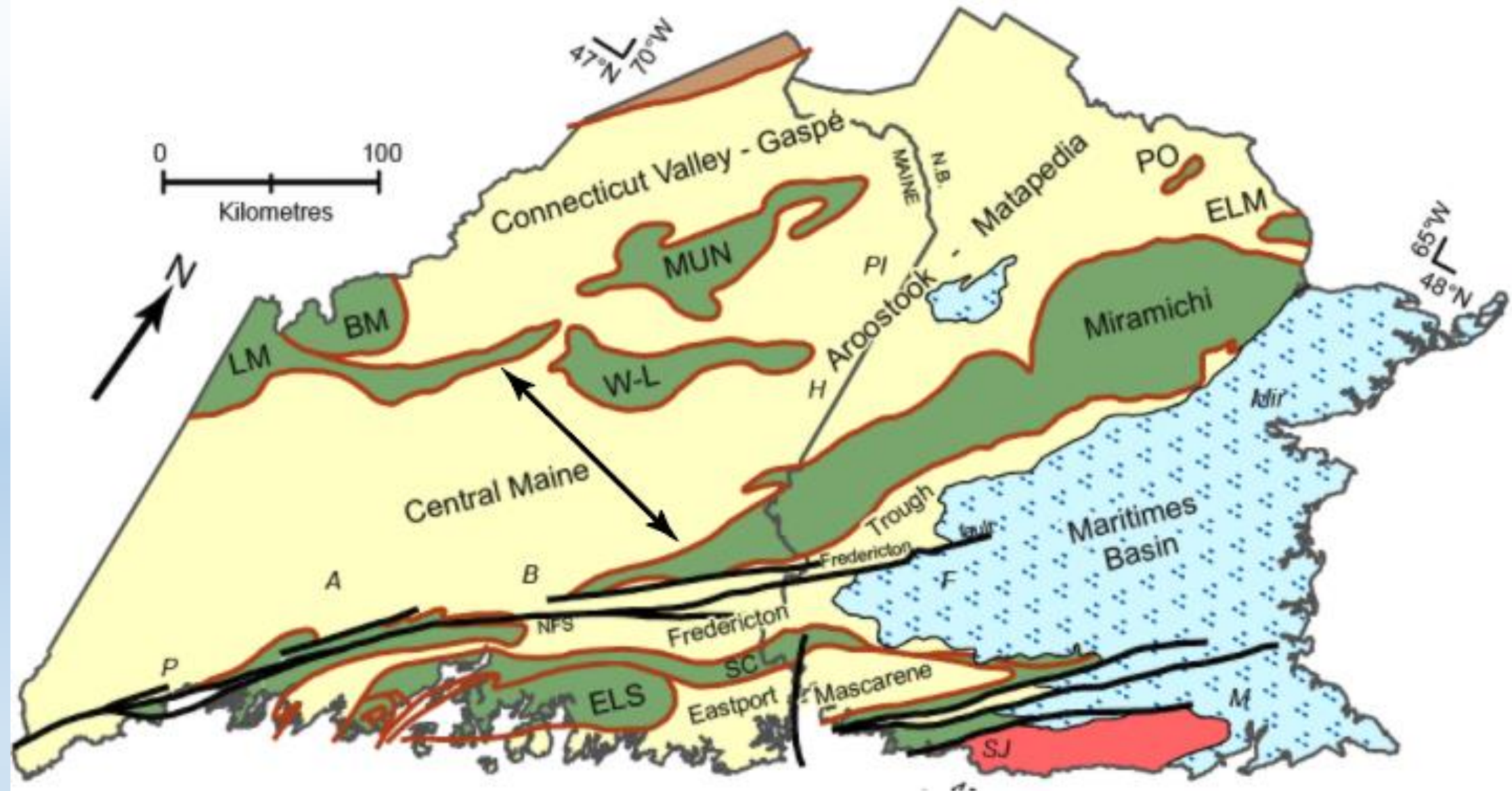
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Tectonics 1: Differential segmented orogen-parallel uplift

Tectonics 2: What is a modern analogue for the Central Maine /Aroostook-Matapedia basin?



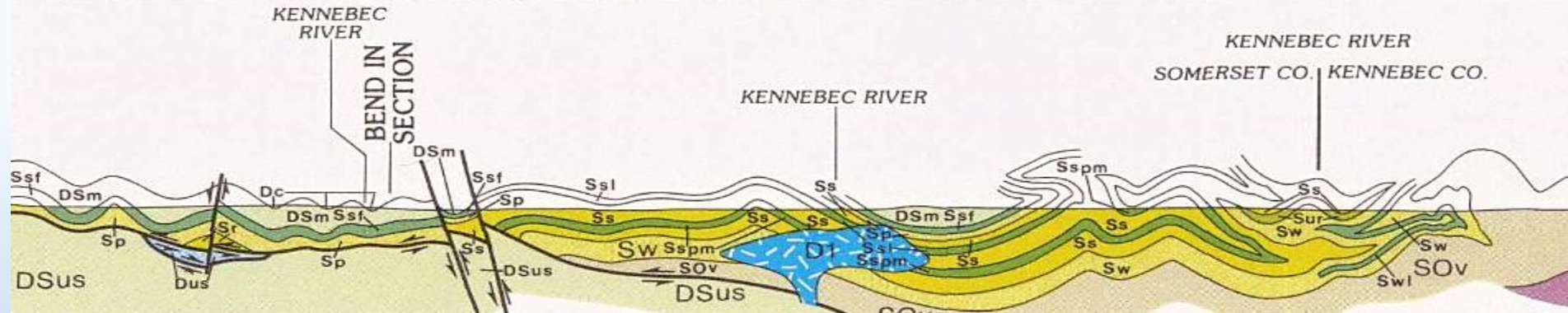
The Central Maine/Aroostook-Matapedia basin is ~150 Km wide *today*, a fraction of its pre-Acadian extent

Ludman, 1969



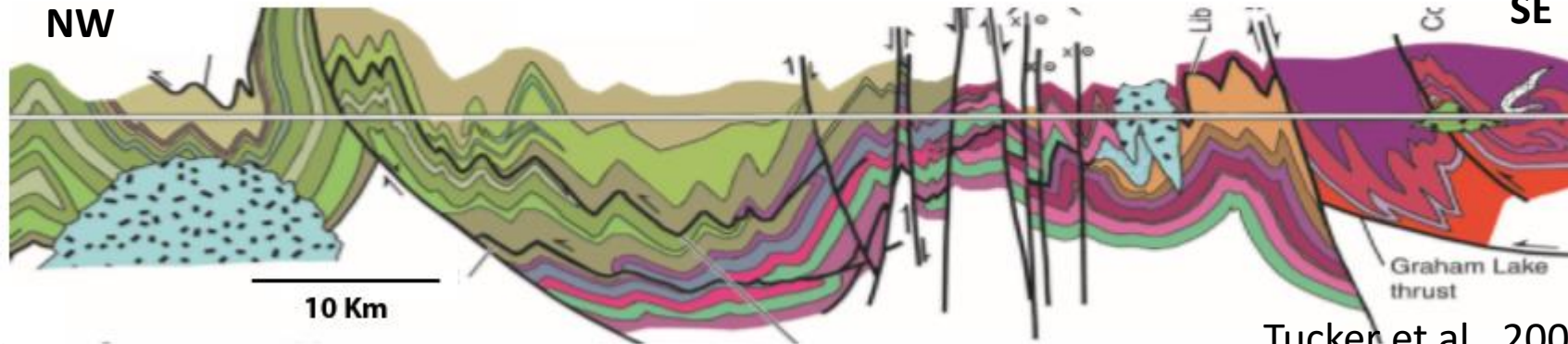
KEARSARGE — CENTRAL MAINE SYNCLINORIUM

Osberg et al., 1985

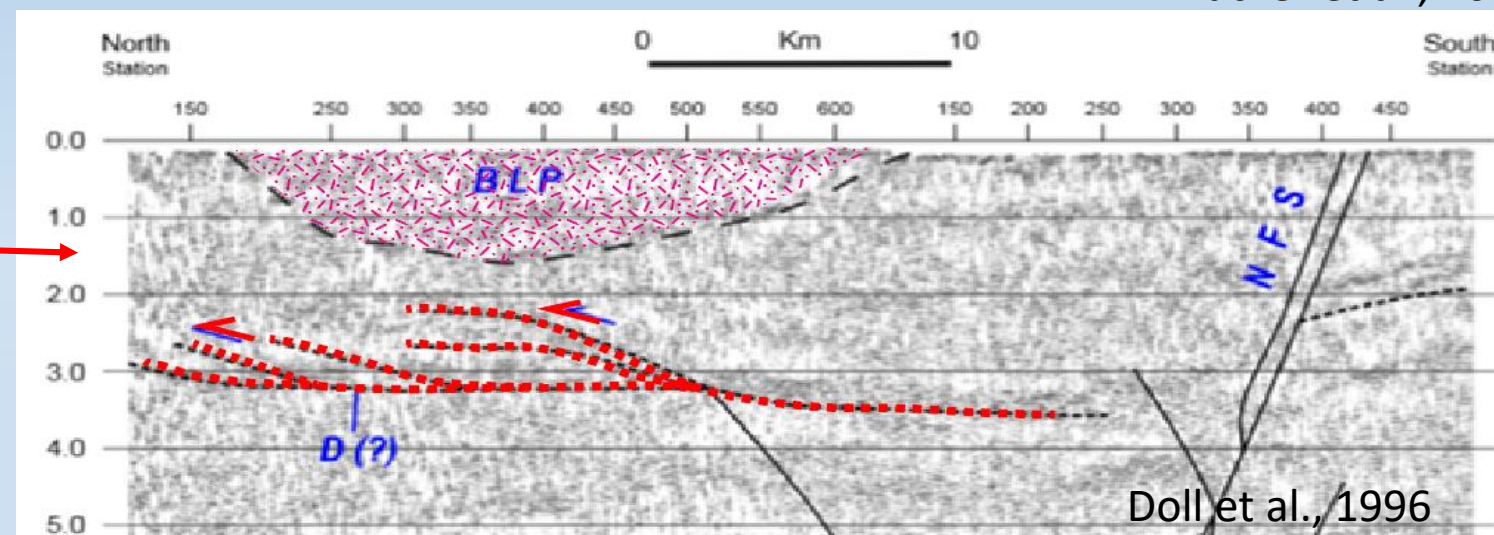


NW

SE



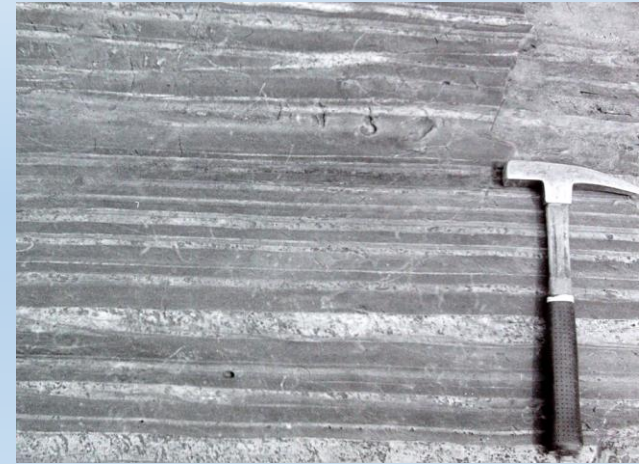
Tucker et al., 2001



Doll et al., 1996

The Central Maine/Aroostook-Matapedia basin

- ~135-150 Km wide today, 4-8 (?) times wider before Acadian deformation
- Received (deep-water?) turbidite sediment from intrabasinal and marginal highlands immediately after late Middle Ordovician deformation



- Well-defined proximal-intermediate-distal relationships on both flanks
- Rare pelagic fossils (graptolites) in basin; benthic shelly fauna in some proximal facies
- Latest tectonic models say not floored by ocean crust

SO BOB, ANY THOUGHTS ON THE CENTRAL MAINE BASIN?

Where today is there such a broad basin with thousands of meters of deep-water turbidites not floored by oceanic crust?

You are most cordially invited to join this old codger in trying to tackle these problems.

I would appreciate your help, and geologic mappers in Maine would very much like to have a unique and most valuable asset:

