

EAS 332: Metamorphic Petrology

Laboratory #3: Pelites I

What is a pelite ?

Pelite = (noun) metamorphosed mudstone

Pelitic = (adjective) metamorphosed rock with a protolith containing some clay minerals

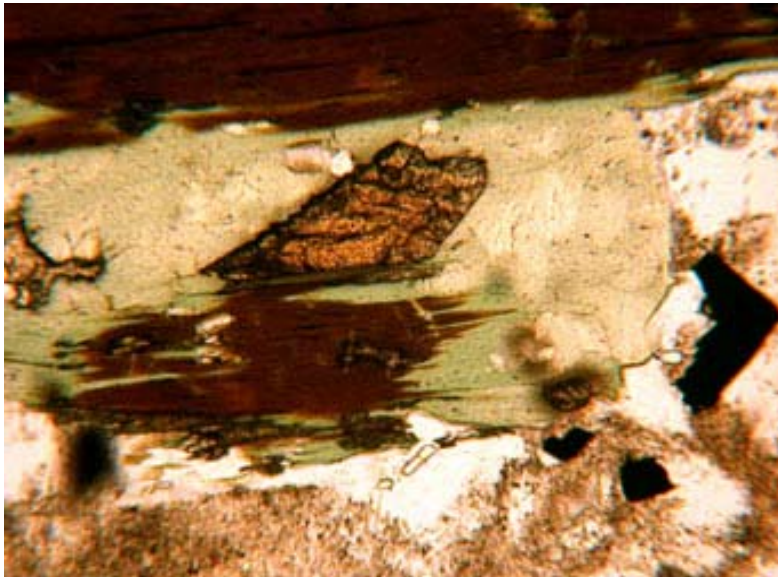
- The next two labs will be looking at various metamorphic grades of pelites. Please notice how the mineralogy and texture of mudstones changes with increasing pressure and temperature



Metamorphic Minerals

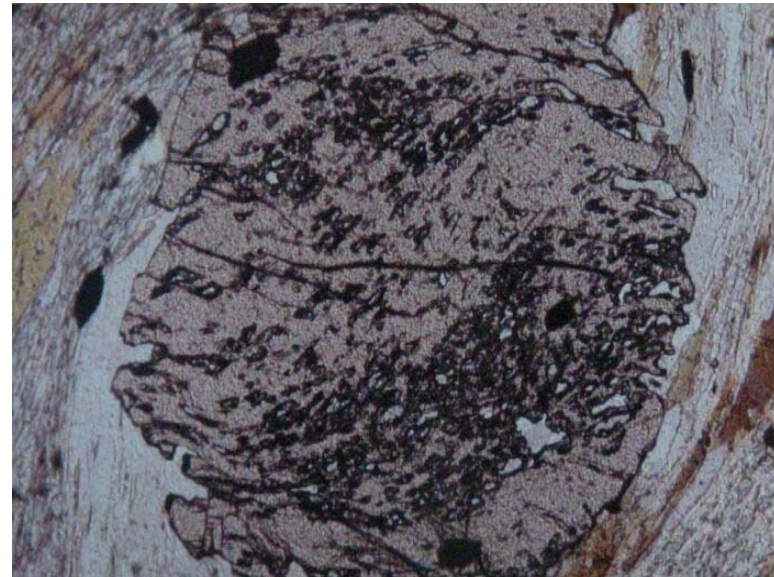
Chlorite

- Green in PPL
- Low relief
- Pleochroic
- 1st order anomalous birefringence



Garnet

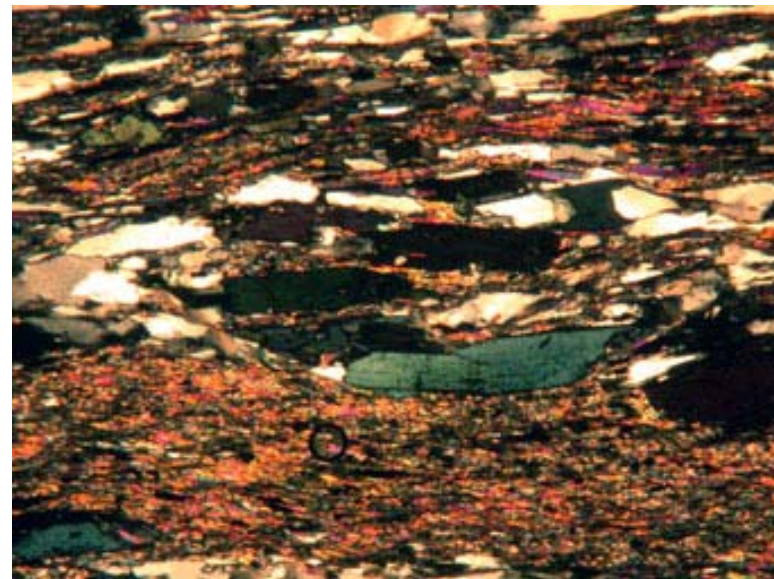
- Red in PPL
- High relief
- Isotropic



Metamorphic Minerals

Chloritoid

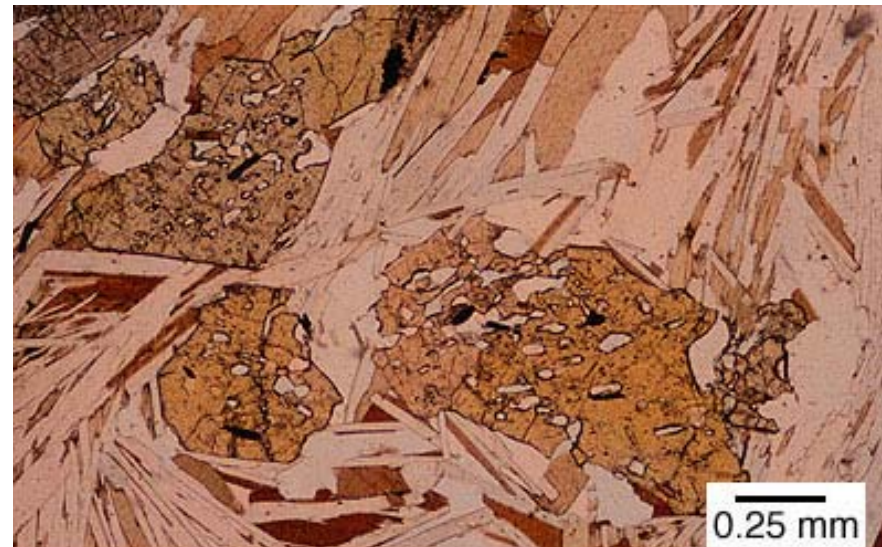
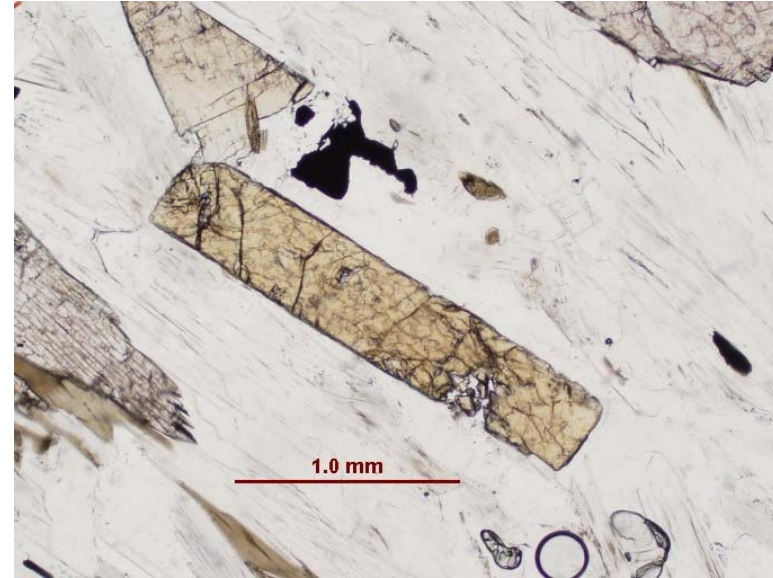
- Moderate-high relief
- Blue-green-yellow-grey colour in PPL
- Pleochroic
- 1st order interference colours (often anomalous)
- Commonly twinned



Metamorphic Minerals

Staurolite

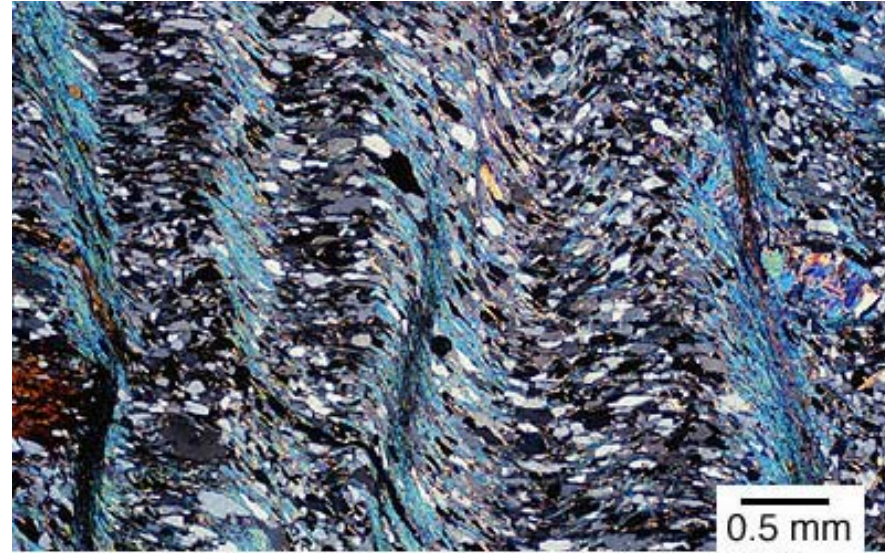
- Yellow in PPL
- Slightly pleochroic
- Moderate-high relief
- Commonly contains inclusions (Swiss cheese)



(from <http://www.geolab.unc.edu/Petunia/IgMetAtlas/mainmenu.html>)

Metamorphic Textures

Crenulation Cleavage



(from <http://www.geolab.unc.edu/Petunia/IgMetAtlas/mainmenu.html>)

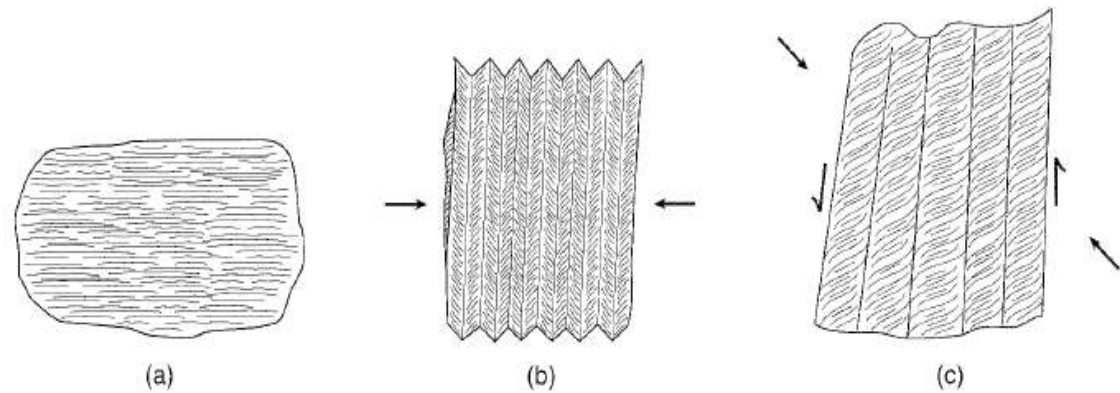
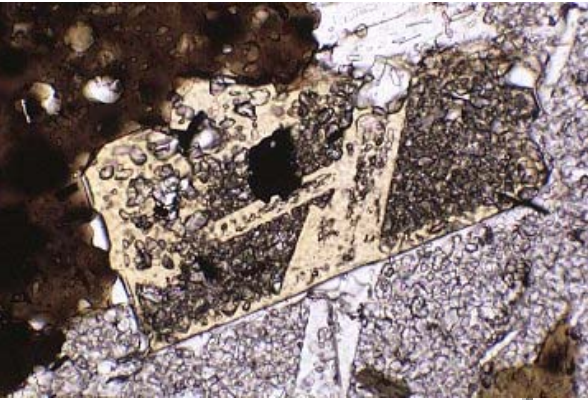
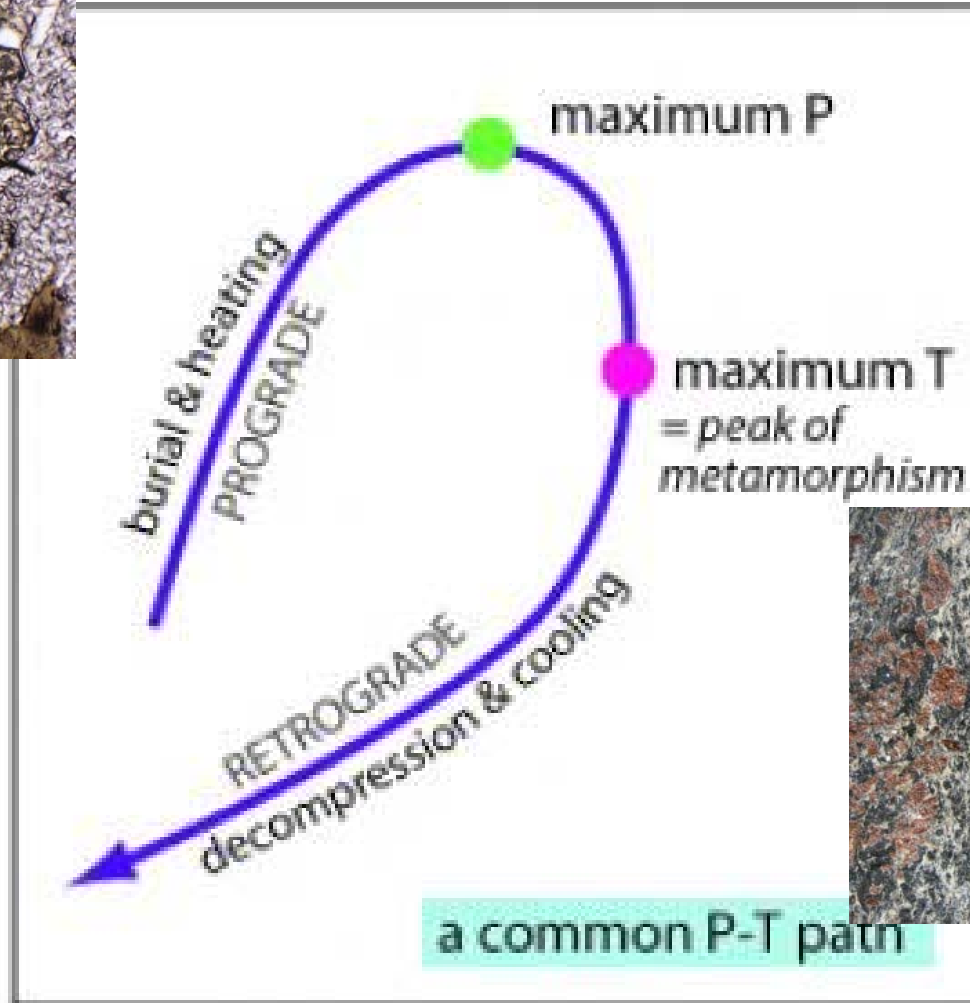


FIGURE 11.13 The two basic categories of crenulation cleavage. (b) Symmetric crenulation cleavage; (c) asymmetric (sigmoidal) crenulation cleavage. The arrows indicate a possible component of shear associated with this crenulation geometry.

“Pro” Versus “Retro” -grade Metamorphism



Pressure



Temperature →



What do i need to hand in?

- Answer all of the short answer questions hidden within the lab
- FULL ROCK DESCRIPTION OF:

M6196

AND

5447 OR JN15-1