

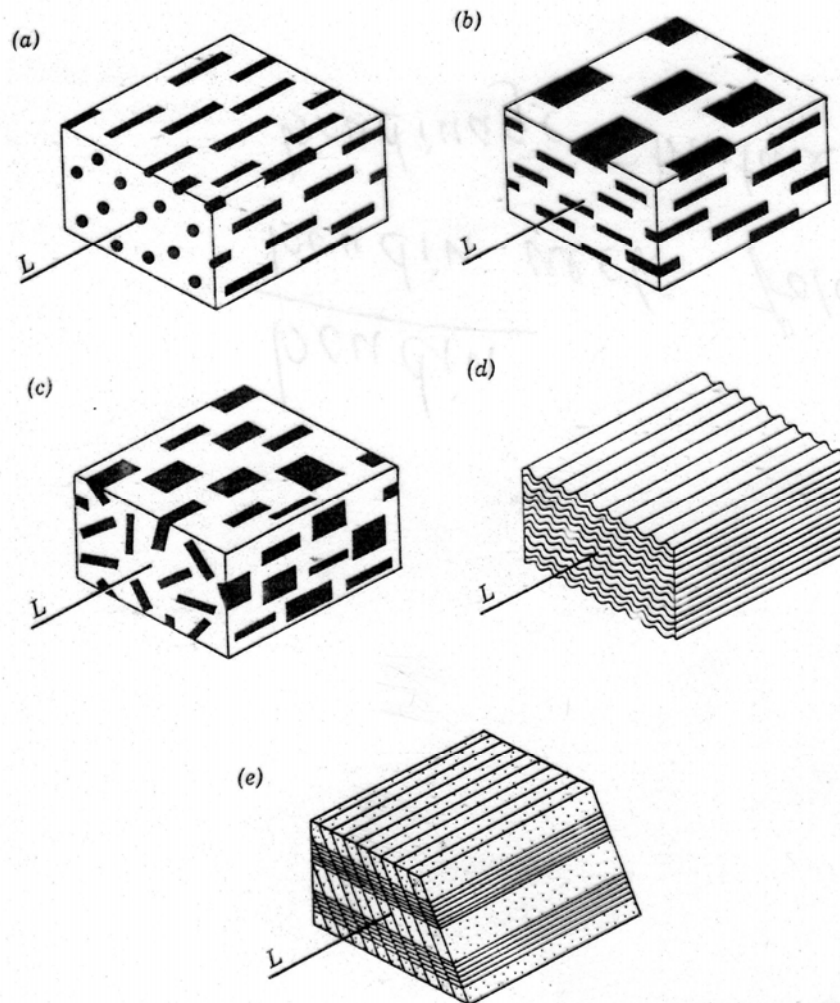
# Lineation

Penetrative linear features in rocks are called descriptively “lineations”

A lineation can be defined by any one, or a combination, of the following fabric elements:

1. Individual mineral grains
2. metamorphic mineral aggregates
3. Stretched pebbles
4. Small-scale fold axes (crenulation lineation)
5. Intersection of 2 foliations (intersection lineation)
6. Boundins

# Examples of fabric elements that can define a lineation





Lineation defined by alignment of stretched pebbles in conglomerate. On horizontal sections, the pebbles appear undeformed, but on vertical sections, there is a strong preferred orientation of the pebbles. They define a vertical lineation (Cross Lake greenstone belt, Manitoba)





Feldspar crystals are preferably oriented (vertical) on this foliation surface. They define a (mineral) lineation. (Blue Ridge, Virginia)



Lineation (parallel to hammer handle) defined by minerals on foliation surfaces (Edmund Lake gneenstone belt, Manitoba)



# Vertical lineation & foliation defined by deformed pebbles in Cross Lake





Highly lineated rocks in Southern Knee Lake greenstone belt, Manitoba. The rock appears like wood fibers.





# Mullion structure





# Mullion structure



# Boundinage structure in Cross Lake





# Boudins and boudin neck folds





# Boudinage structure from Scotland



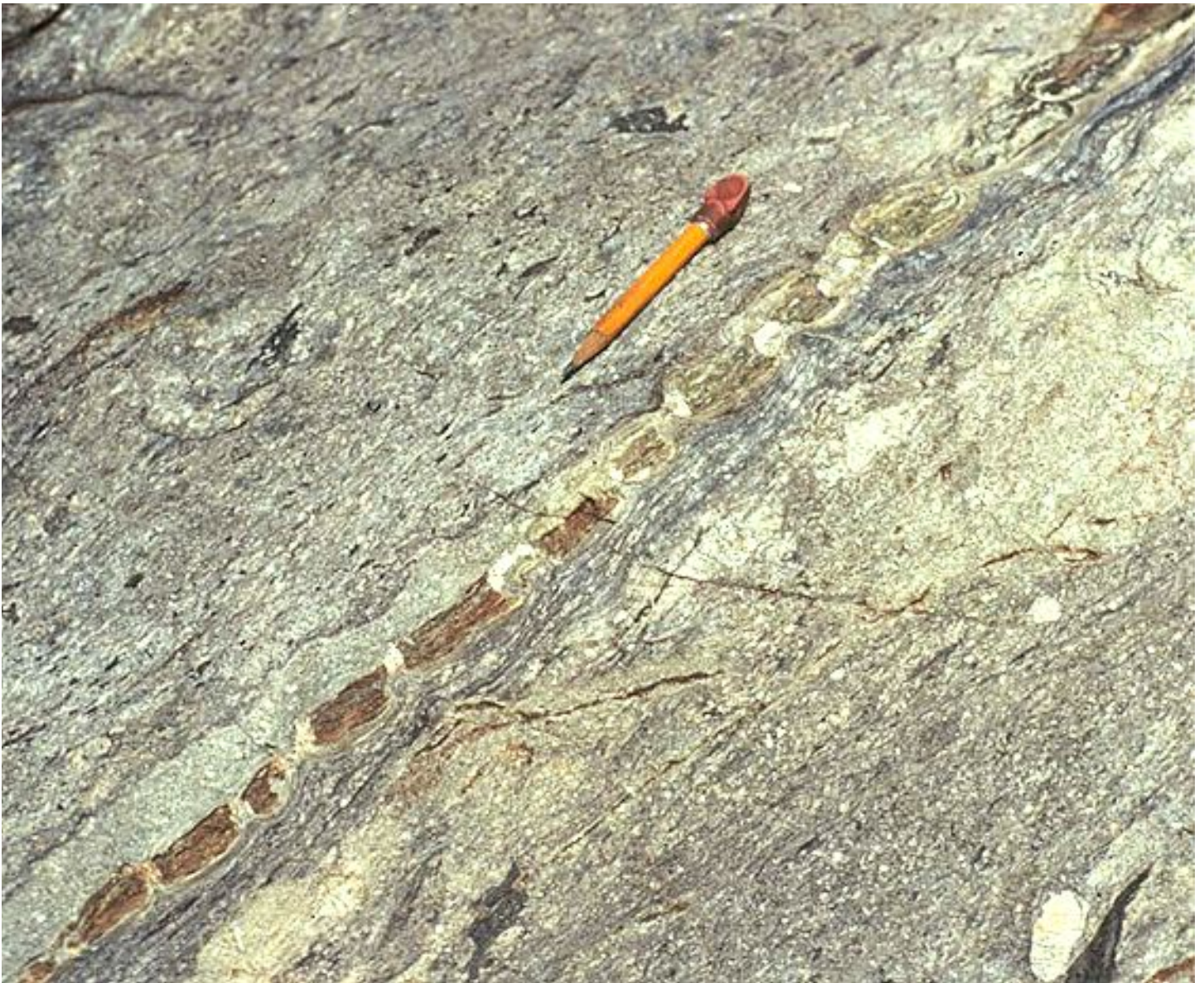


# Boudins mylonites from Scotland





# Boudinage structure (boudin necks are pressure shadows)





Boudinage structure  
(compare it with the Cross Lake one)  
The boudins here are still connected...  
Different degree of competence  
contrast



# Folded boudins boudinage (extension) first, folding (shortening) second

