

Notes : Metamorphic Rocks

Definition - meta = change , morph = form
- changes in composition or texture → new rock

I. Factors of Metamorphism

a) Temperature

- up to $\sim 200^{\circ}\text{C}$ are sedimentary diagenesis processes
- upper limit is melting → igneous rocks
- result in larger crystals

b) Pressure

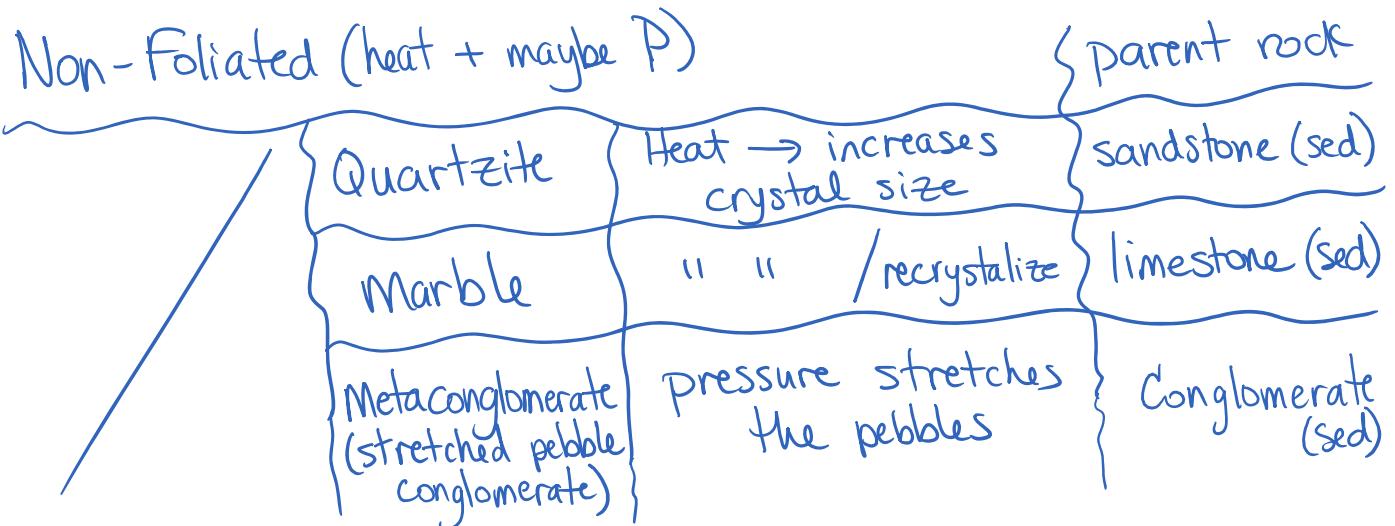
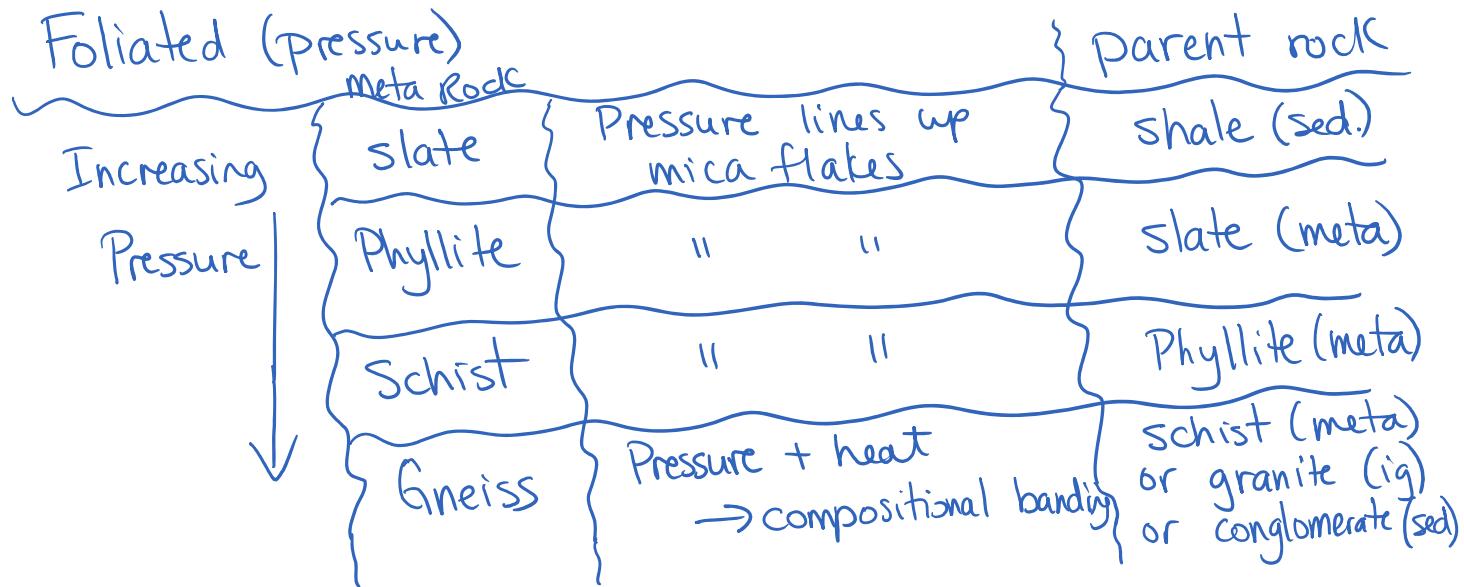
- confining pressure - equal P in all directions from surrounding rocks
→ deformation and denser minerals
- directed stress - not equal, caused by mountain building / squeezing
→ foliation and compositional banding

c) Chemistry

- fluids flow through the rock resulting in a changed rock composition.

II. Types of Metamorphic Rocks

- can be subdivided by texture:
 - foliated (peely-apart look where mica flakes lined up from P)
 - non-foliated (re-crystallized from heat)



III. Metamorphic Environments

a) regional metamorphism

- mountain building events
- creates foliated rocks

b) contact metamorphism

- near a pluton, heat metamorphoses the country rock.
- closer to pluton → more heat → more metamorphism.

c) Fault-zone metamorphism

- temp. and P increase along fault line

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IV. Metamorphic Grade

- a description of overall intensity of metamorphic-ness.
- high grade meta. rocks show more changes, were subject to higher Ts and Ps.

