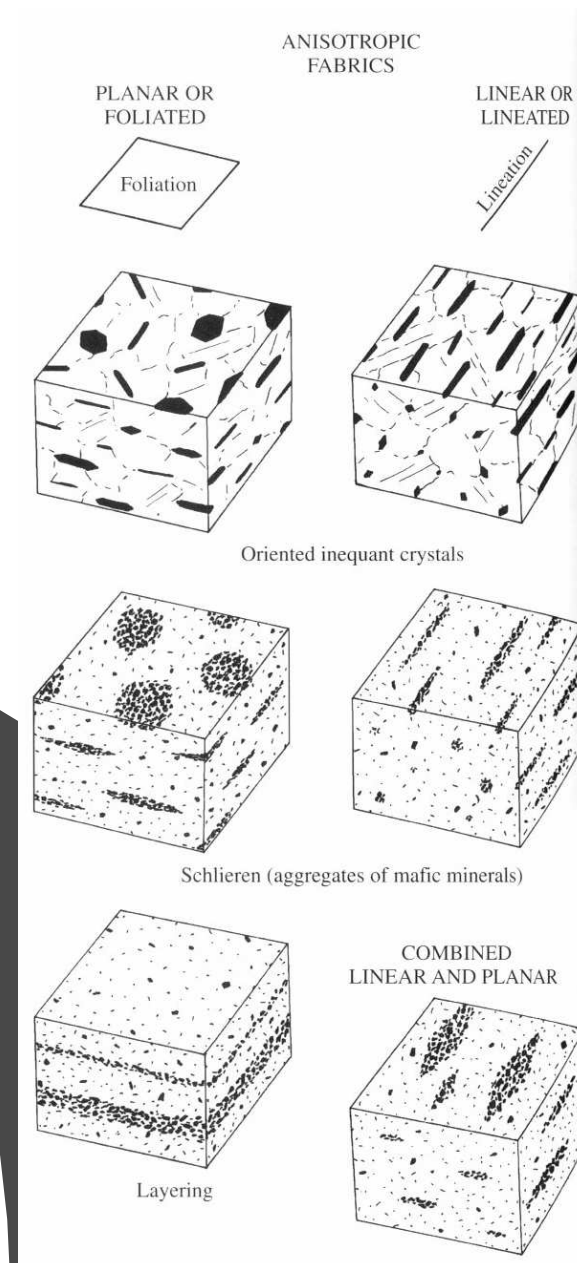


# Anizotropní stavby

**Foliace**  
**Lineace**

**Projevy:**  
**Vrstevnatost složení**  
**Nehomogenní orientace**  
**krystalů**  
**Šlíry**

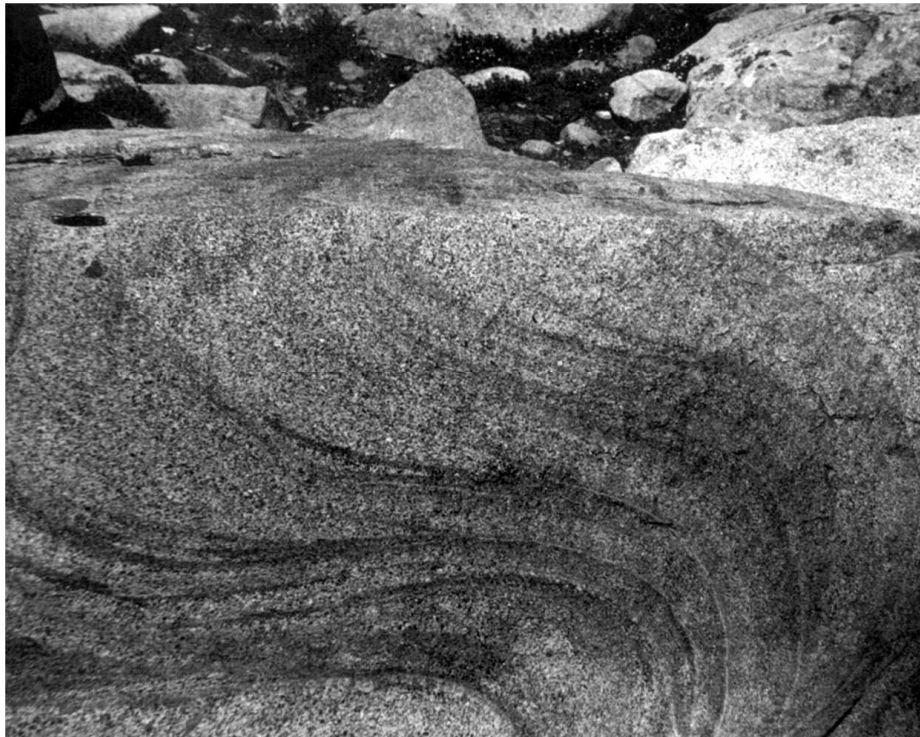
Josef Zeman



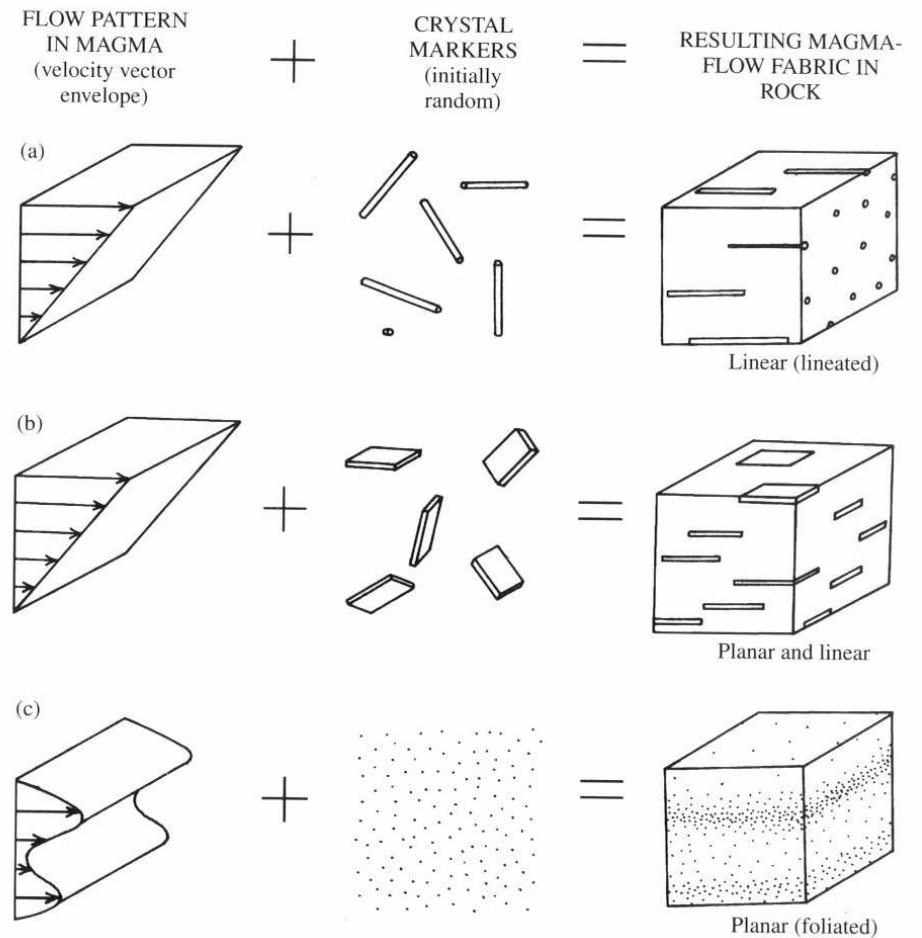
# Původ:

## Toková orientace a toková vrstevnatost

## Problematické



Josef Zeman

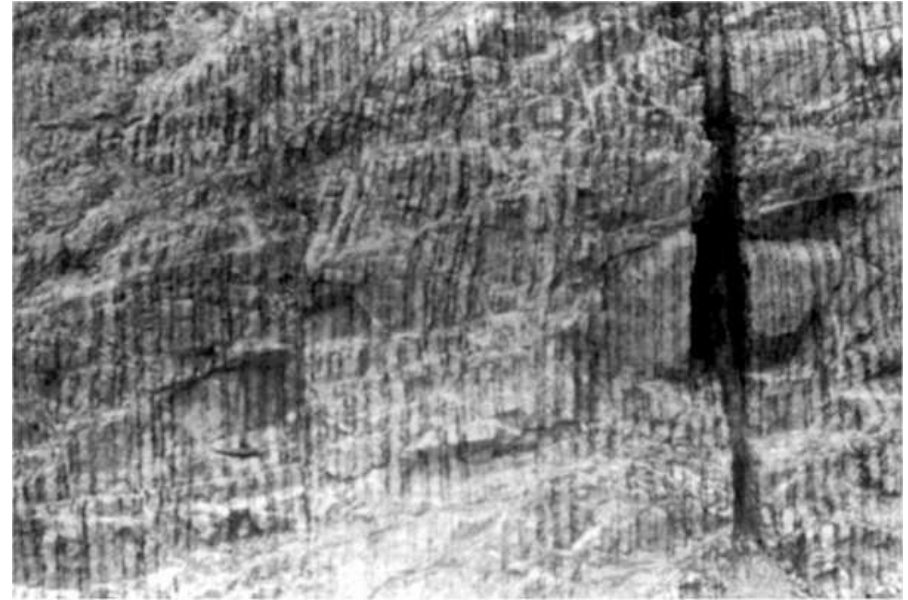
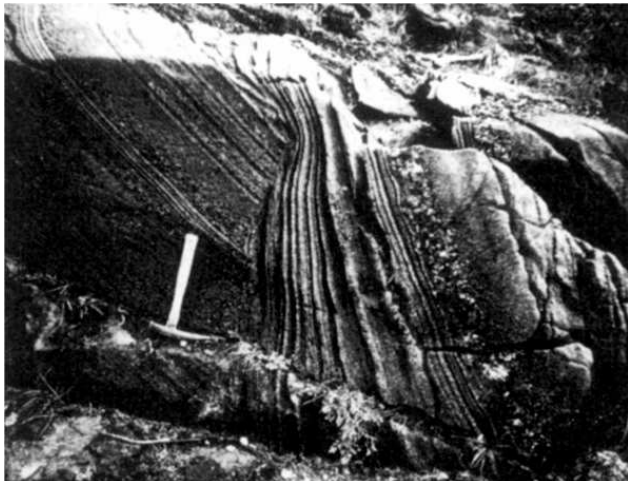


Vrstevnatost složení. Granodiorit, Alra, Utah.

# Vrstevnatost



Vrstevnatost velikosti krystalů. Ultramafický komplex Duke, Aljaška. Pyroxeny, olivíny.



Gabro. Stillwater komplex, Montana. Pyroxen-plagioklas. Skaergaard, Grónsko.



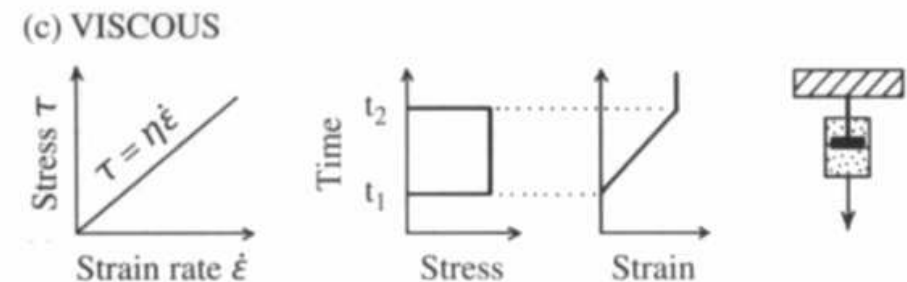
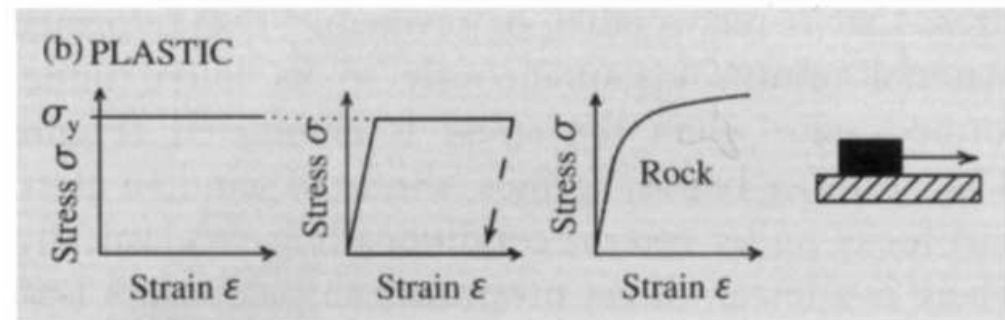
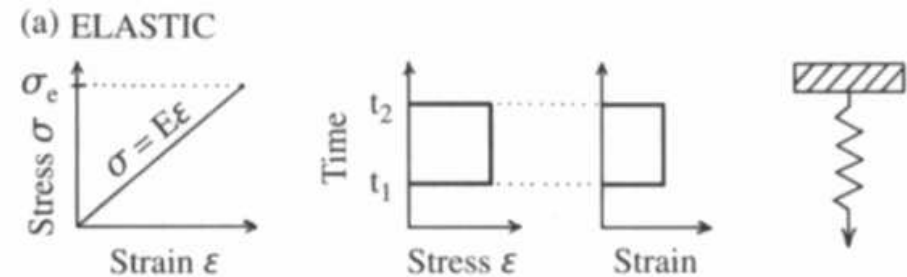
# Fyzikální a tepelná dynamika magmatických těles

## Tlakové namáhání a deformace

**Elastické chování – deformace  
lineárně roste s tlakem,  
vratná**

**Plastické chování – deformace  
nekonečně roste, nevratná**

**Viskozní chování – rychlost  
deformace úměrná  
namáhání**



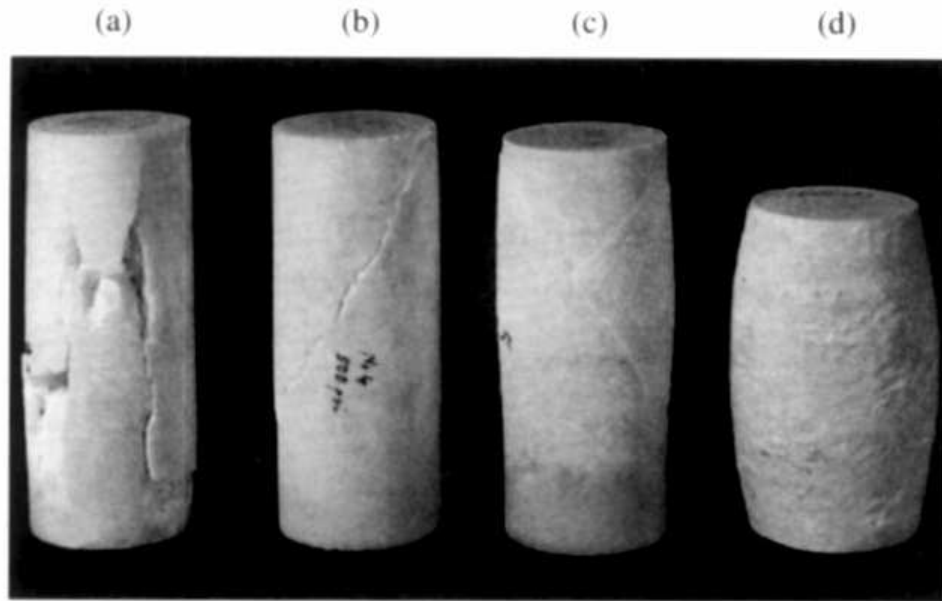
# Deformace



Josef Zeman

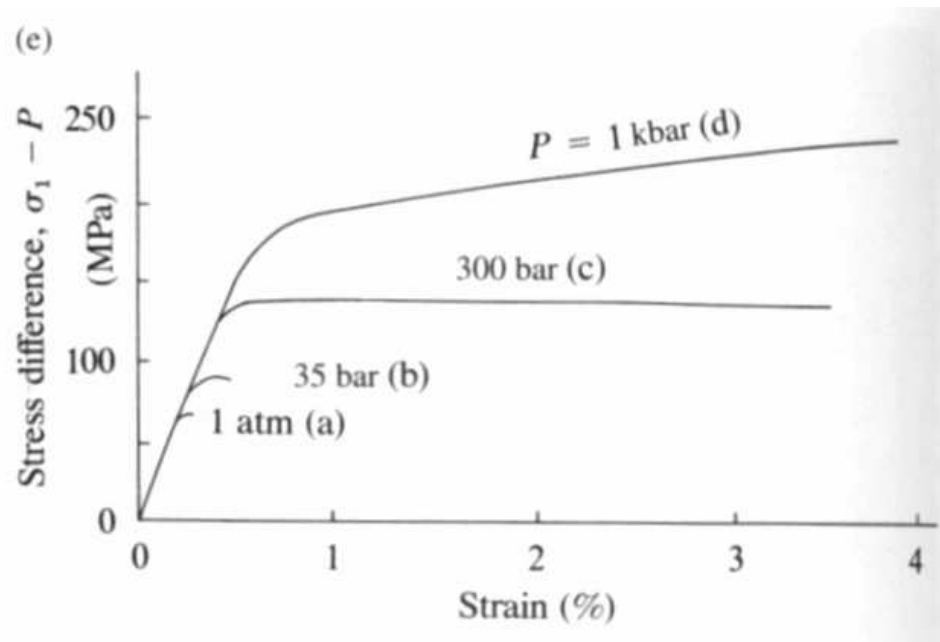
Rohovec, Sutter Creek, Kalifornie.

# Závislost deformace na celkovém tlaku

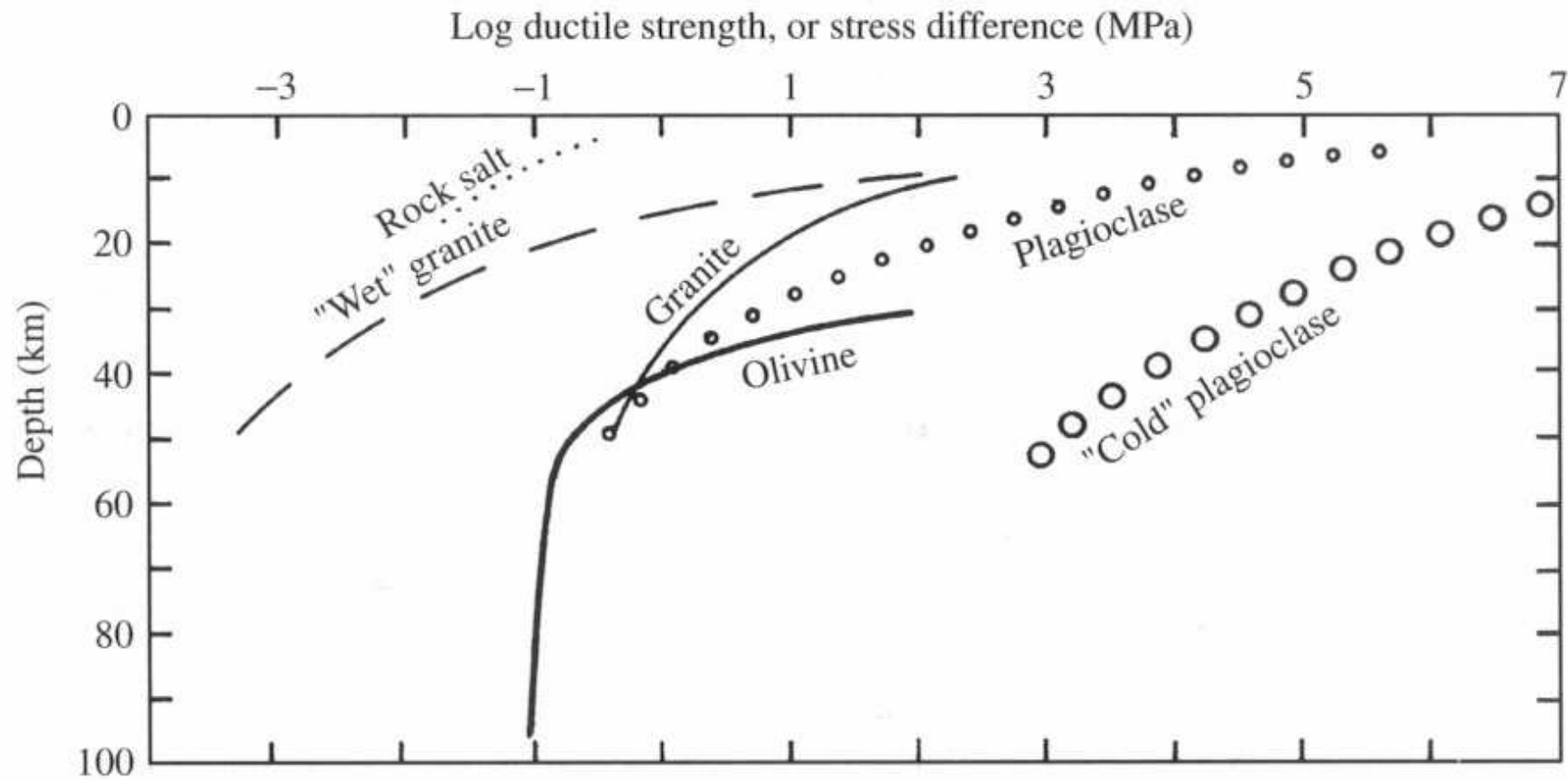


Křehké chování  
Plastické chování

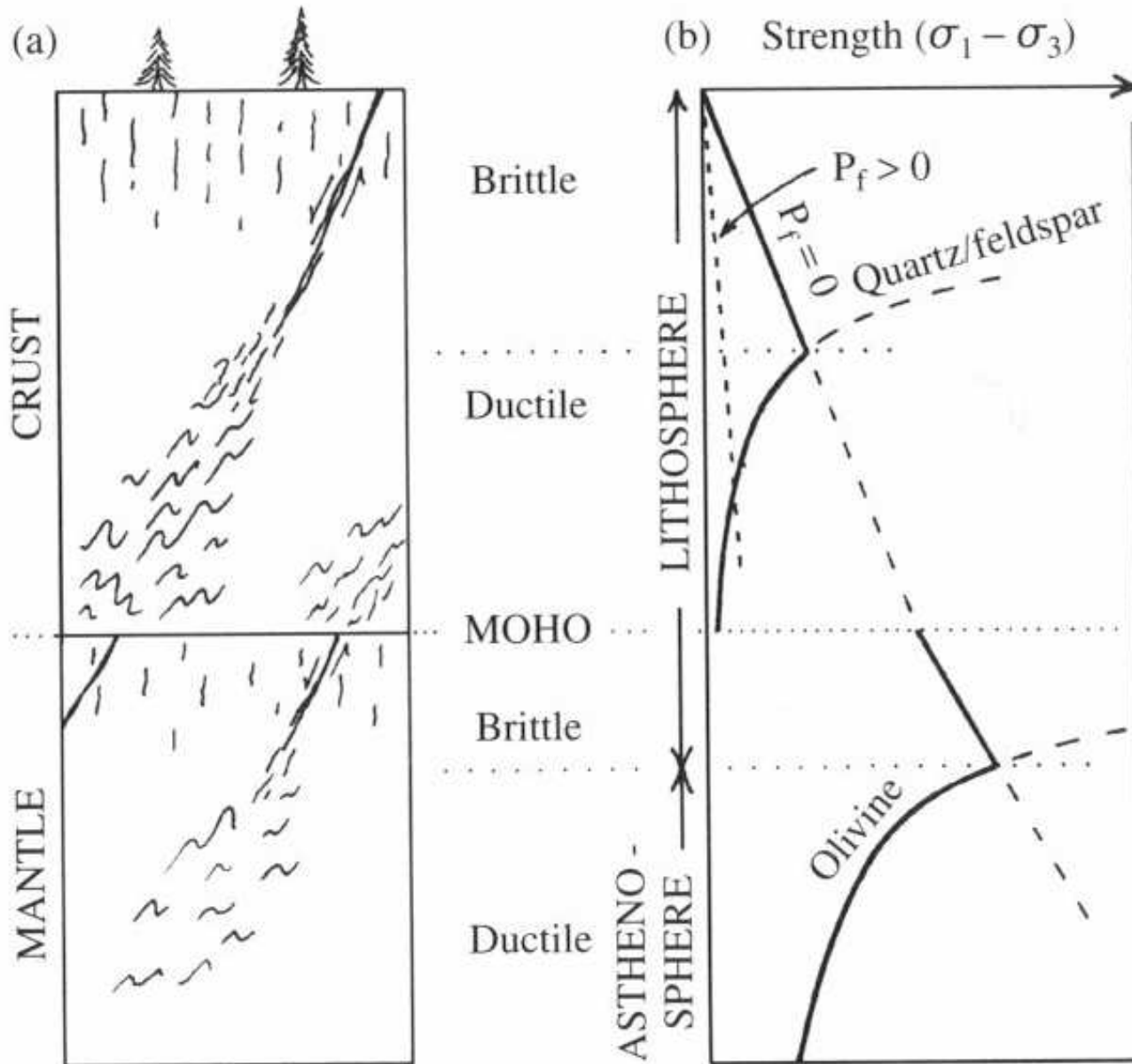
Deformace  
mramoru



# Plastické chování

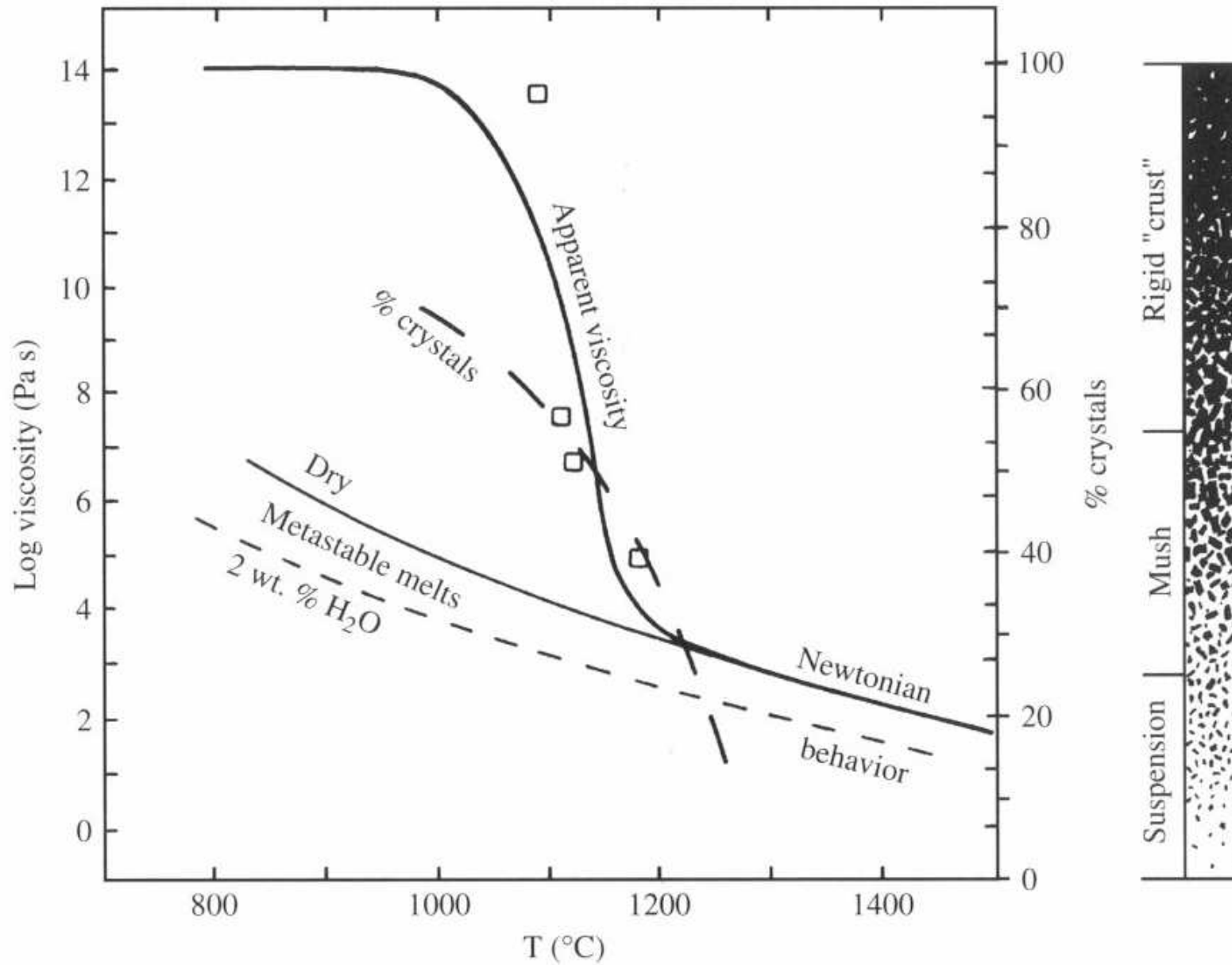


# Kombinované chování

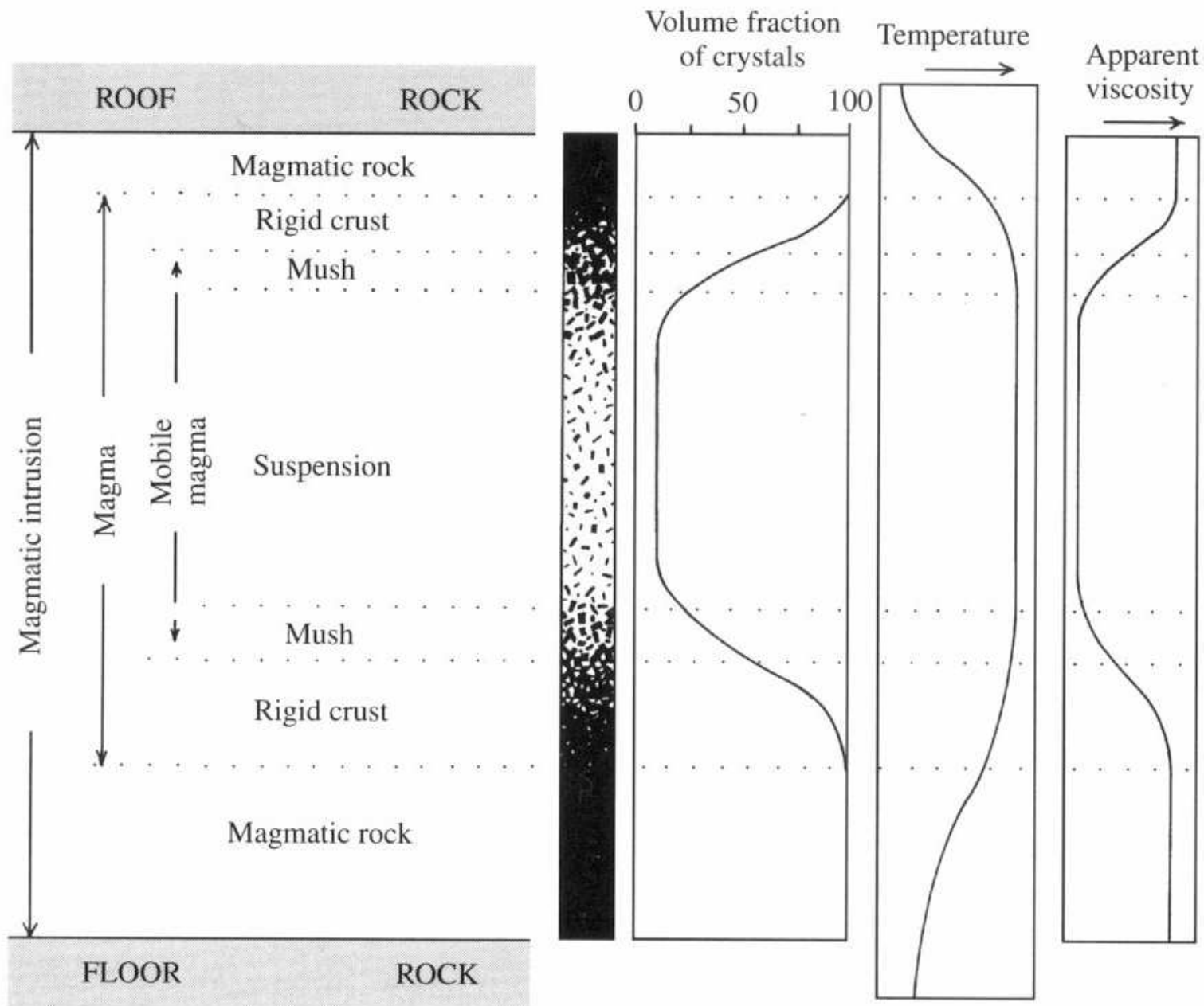




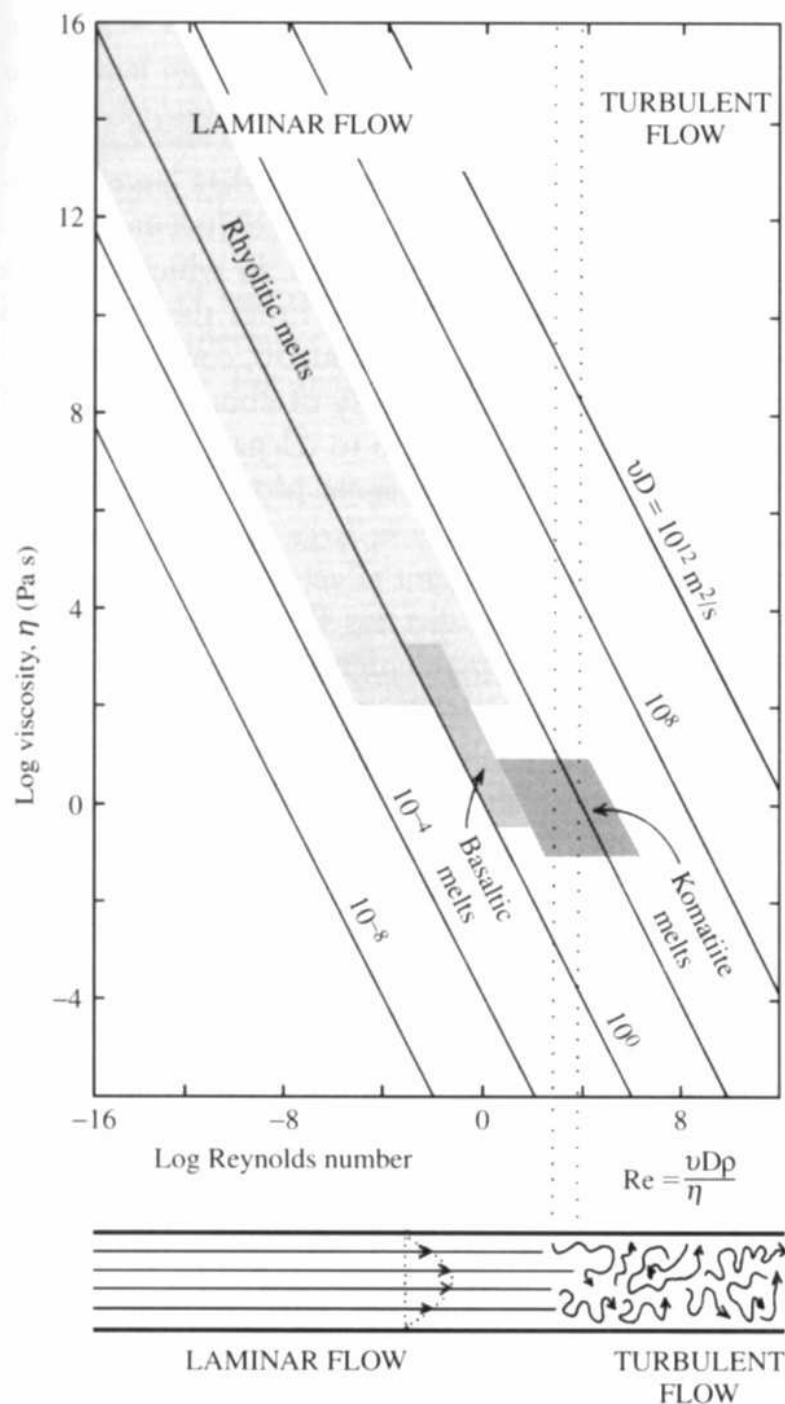
# Viskozita magmatu



# Intruzivní systém



# Laminární a trubulentní tok



Reynoldsovo číslo

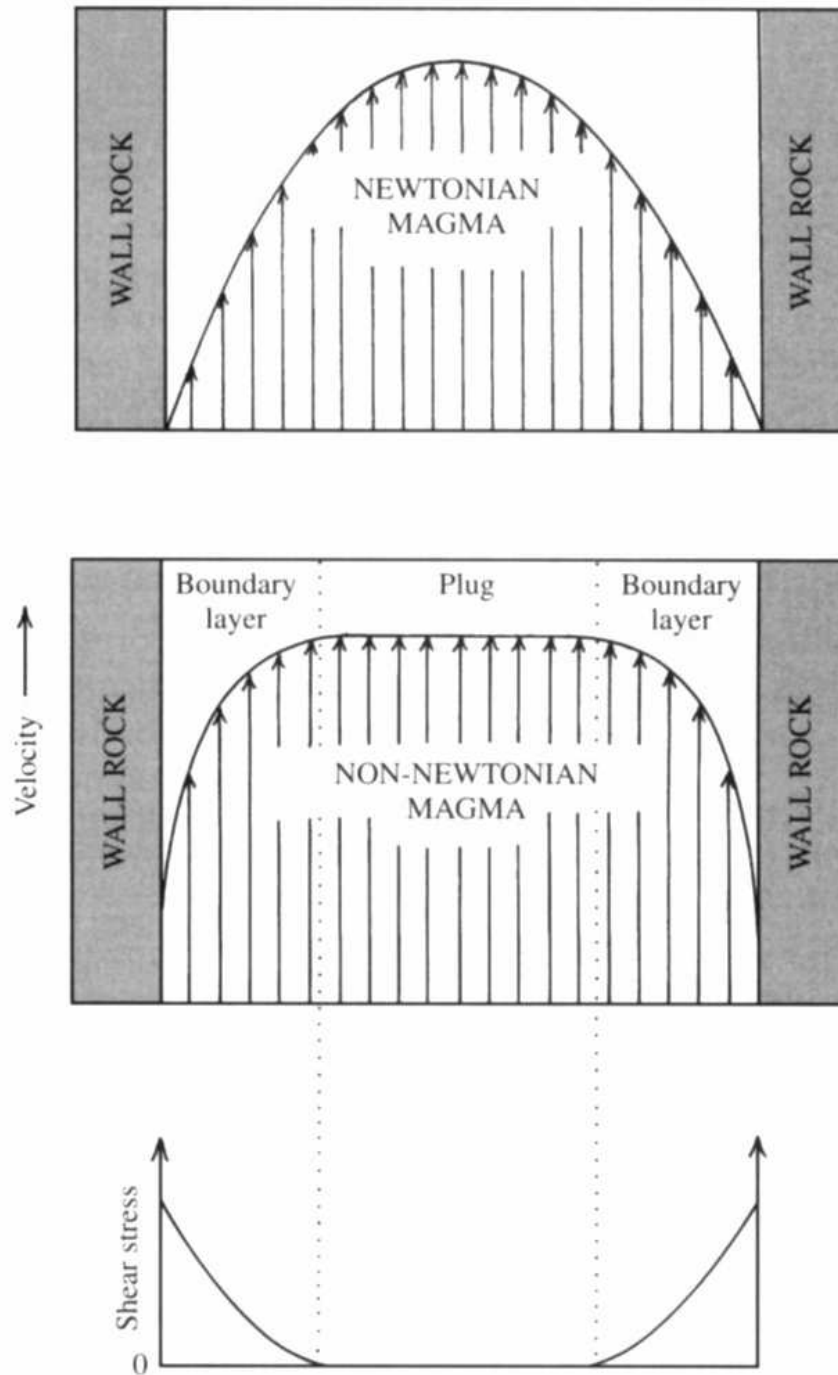
$$\text{Re} = v D \rho / \eta$$

D – hydraulický poloměr =  $4 \times$  průřez /  
smáčený obvod

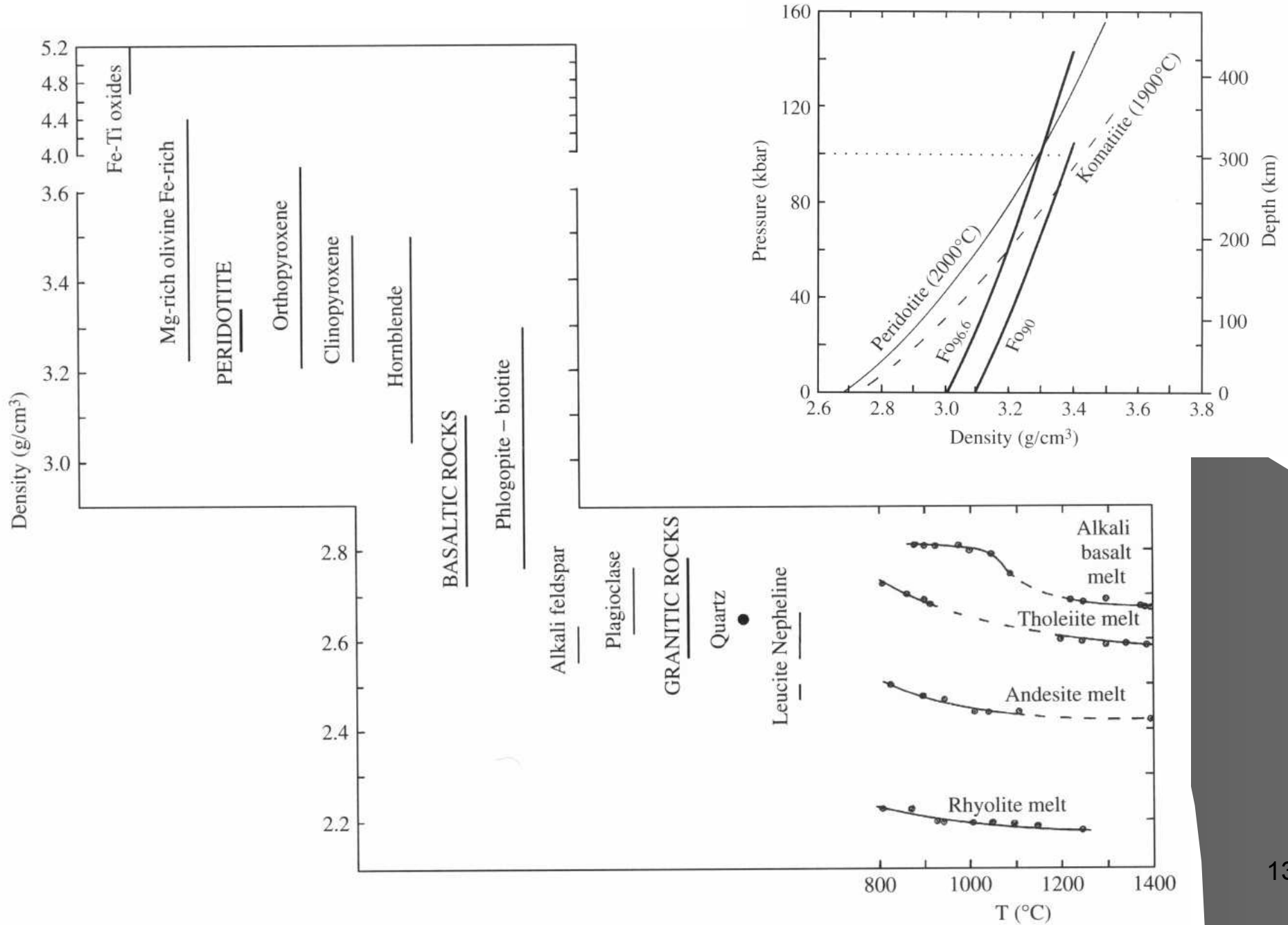
Pro válec  $\text{Re} = 4 \pi r^2 / 4 \pi r$

Kritická hodnota se pohybuje  
mezi 500–4000 v závislosti na geometrii

# Rychlost a tlakové namáhání v pohybujícím se magmatu

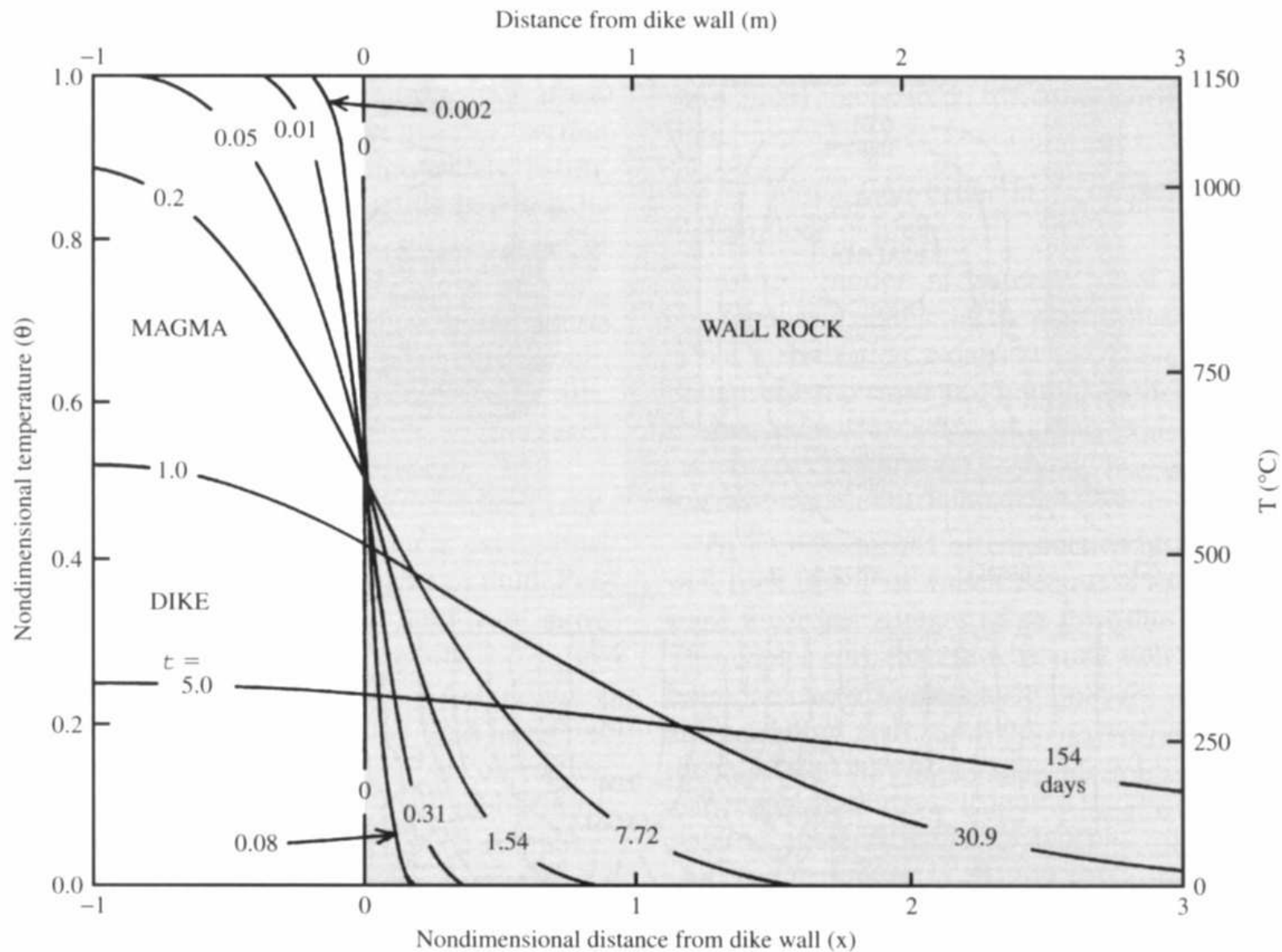


# Hustota magmatu a vztlakové vznášení

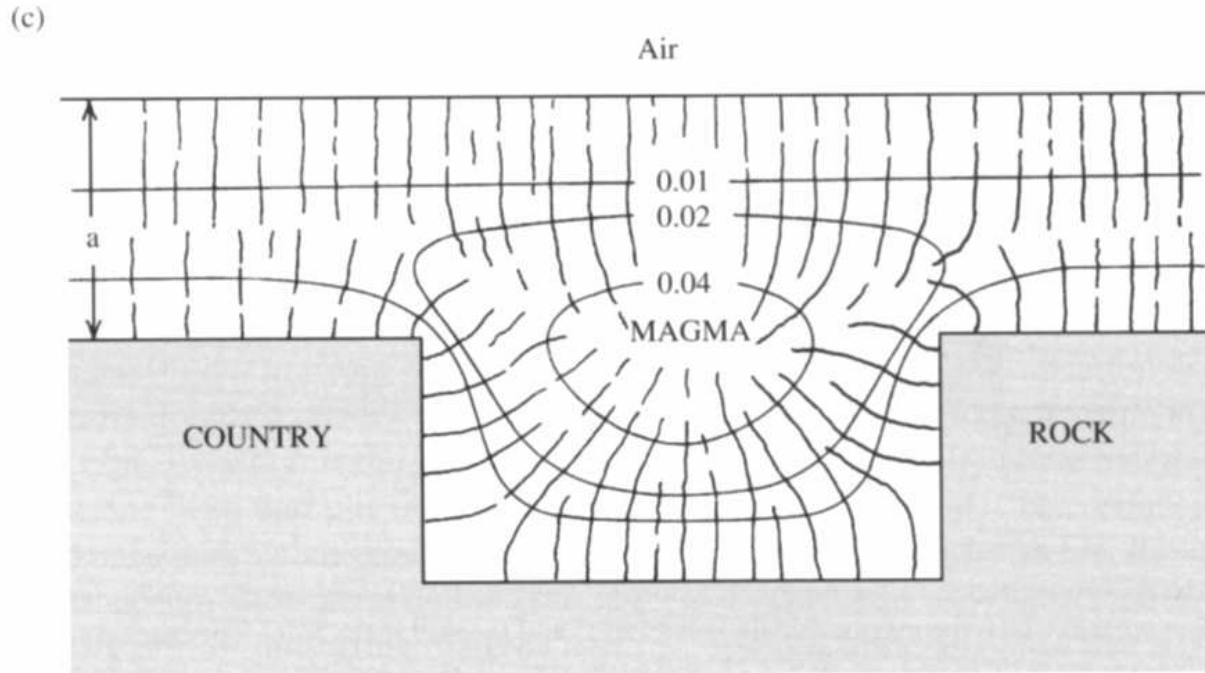
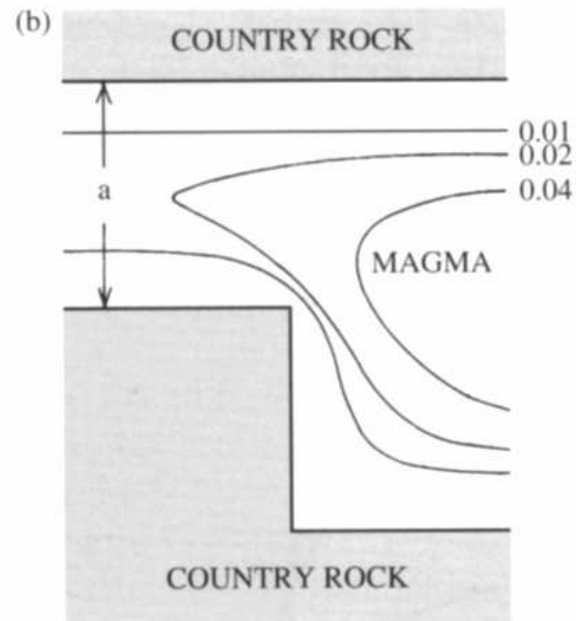
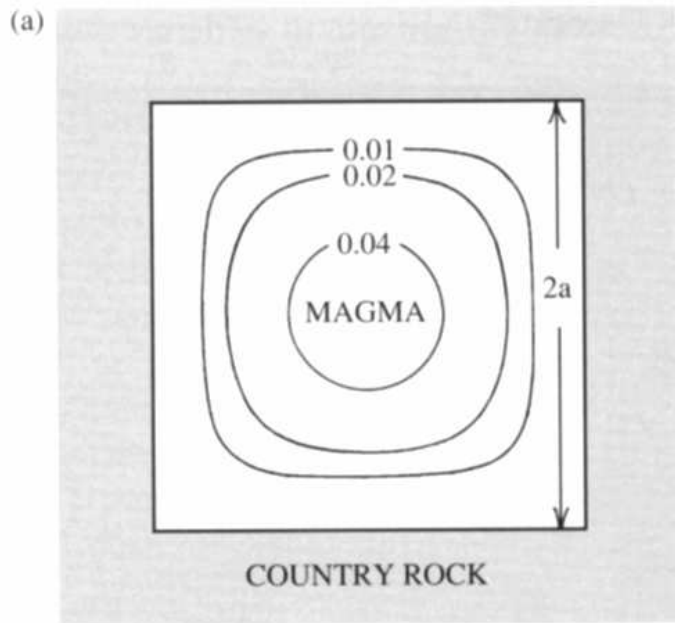


# Přenos tepla vedením

## Přenos tepla prouděním

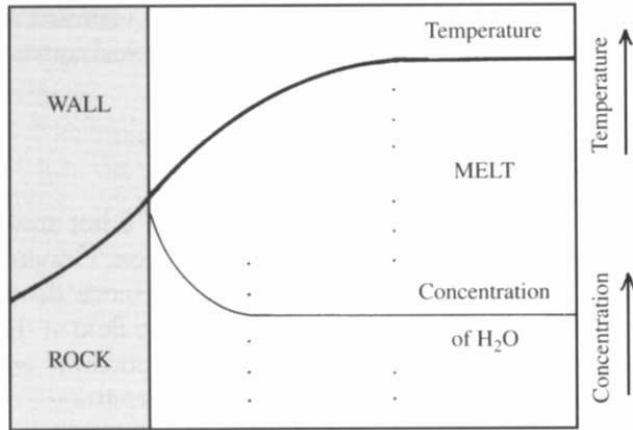


# Chladnutí

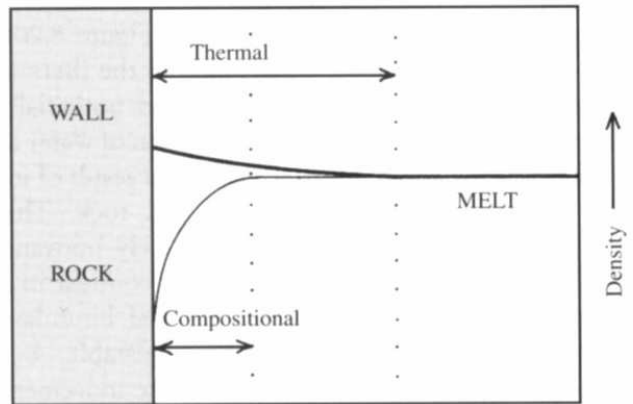


# Konvekce

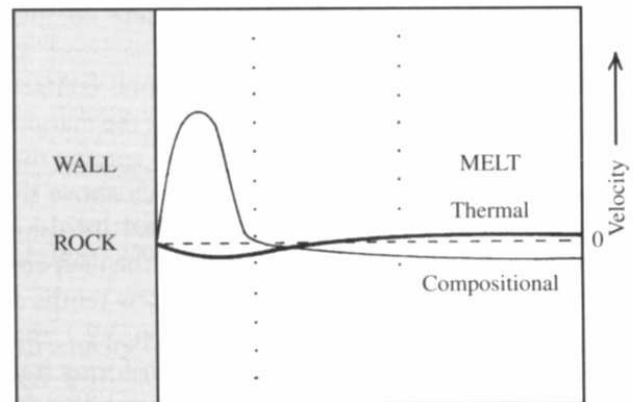
Gradients



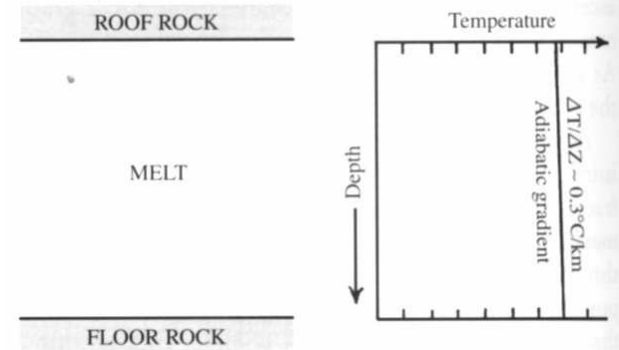
Resulting boundary layers



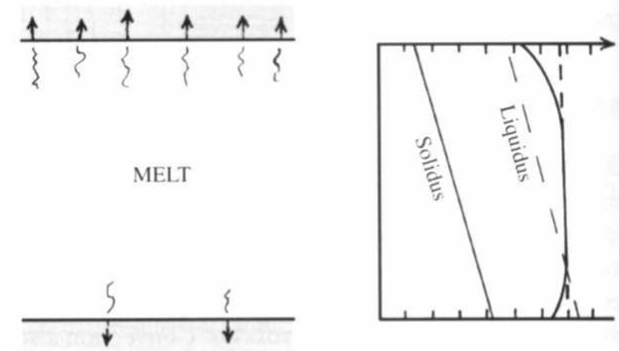
Resulting flow velocity



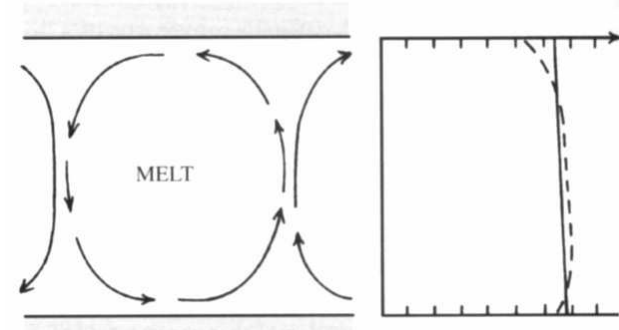
(a) Emplacement of melt



(b) Conductive heat loss, chiefly through roof; new thermal gradient leads to gravitational instability and...

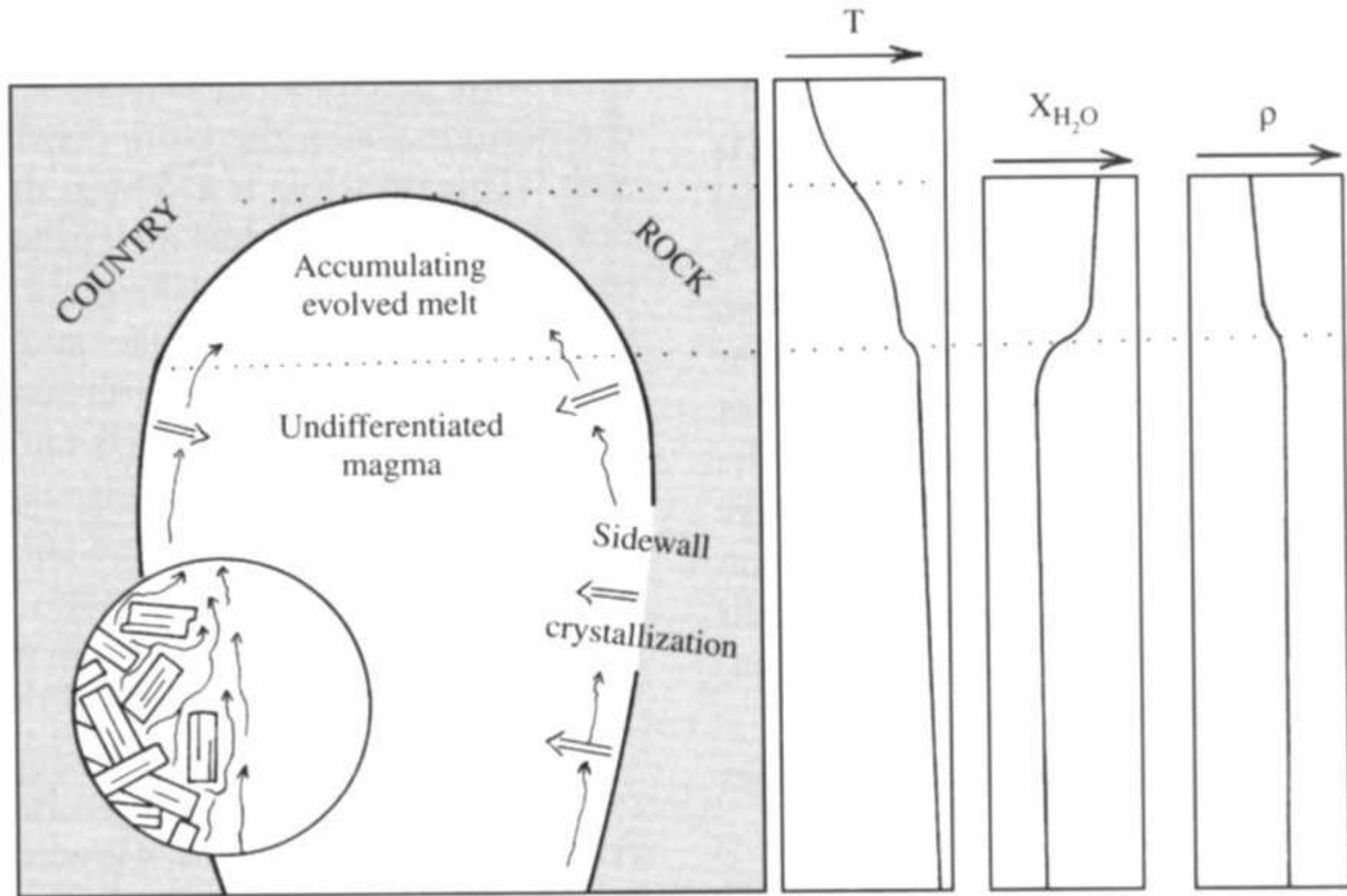


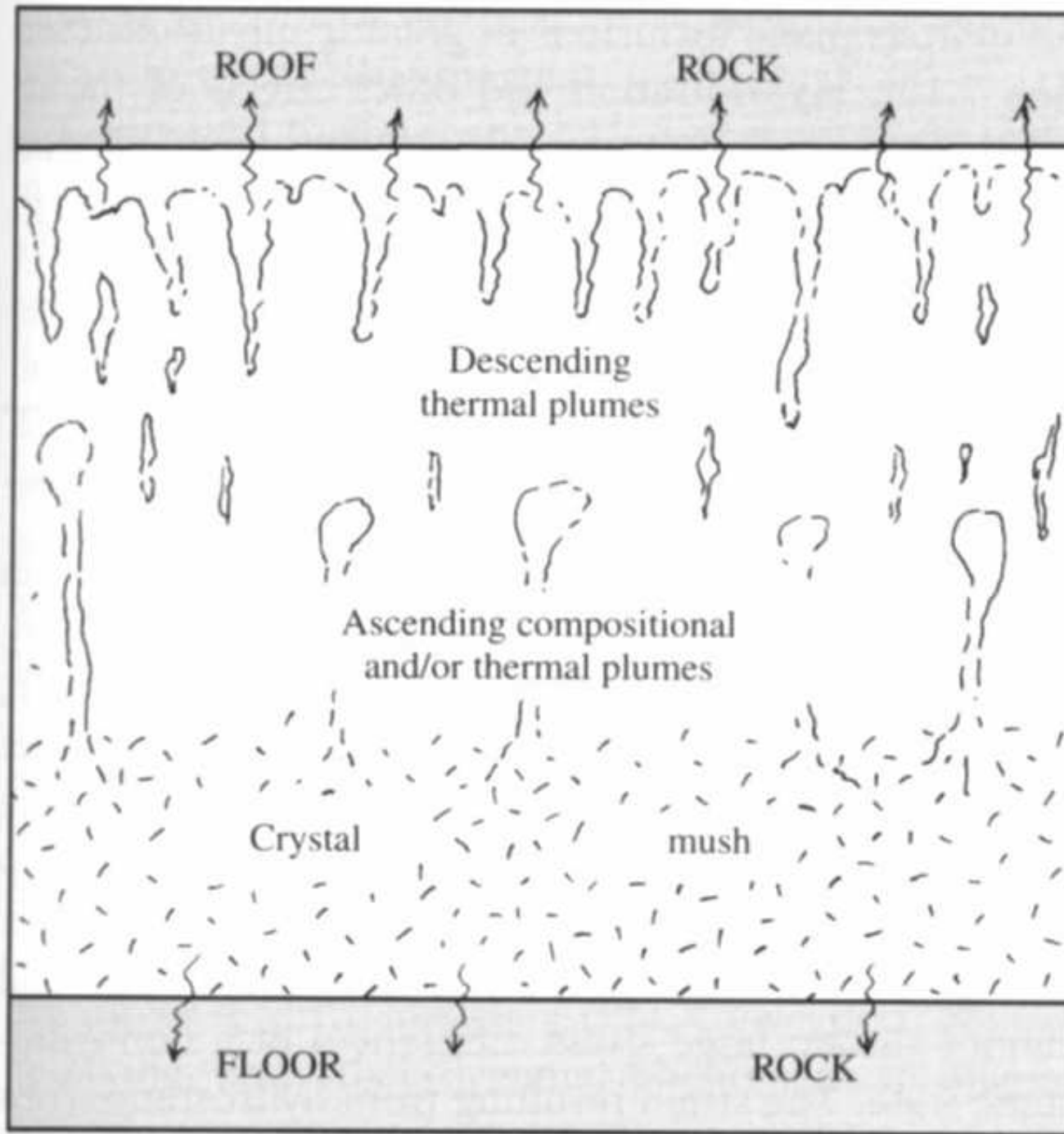
(c) Convection cells





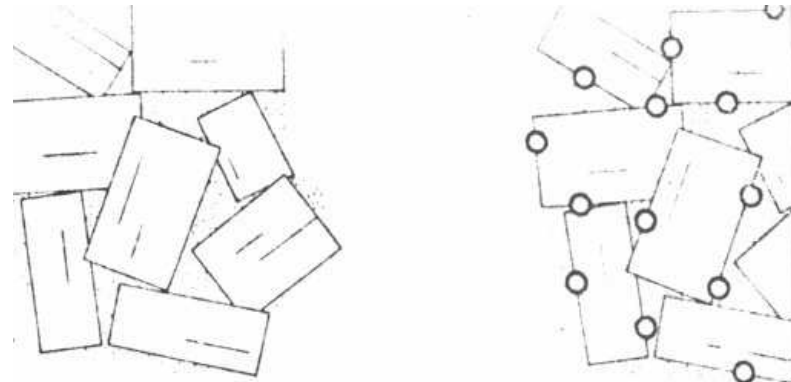
# Termochemická konvekce





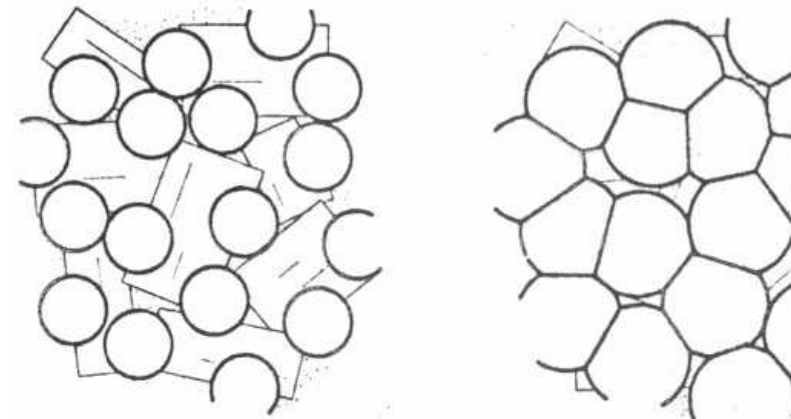
# Metamorfnní procesy

Rekrystalizace



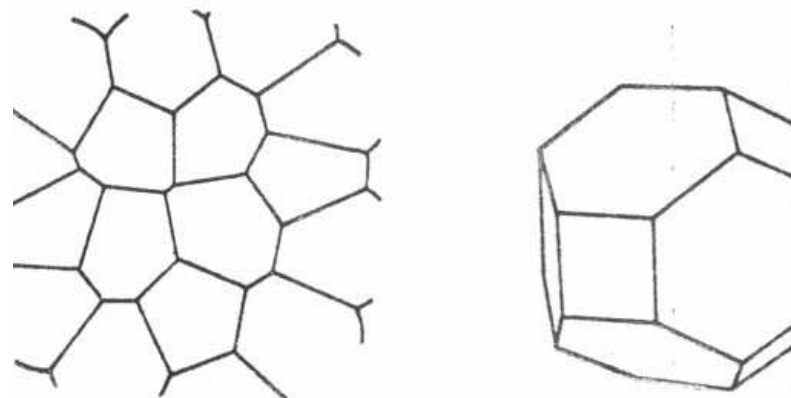
Reakce

Pevná fáze + pevná fáze



Pevná fáze + (fluida –  
pevná fáze)

Oxidačně-redukční reakce



# Vznik metakrystů

