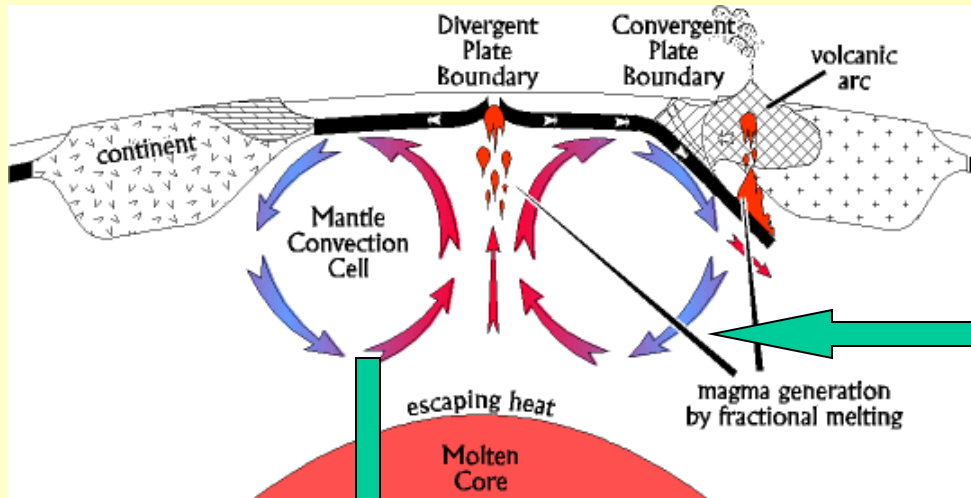
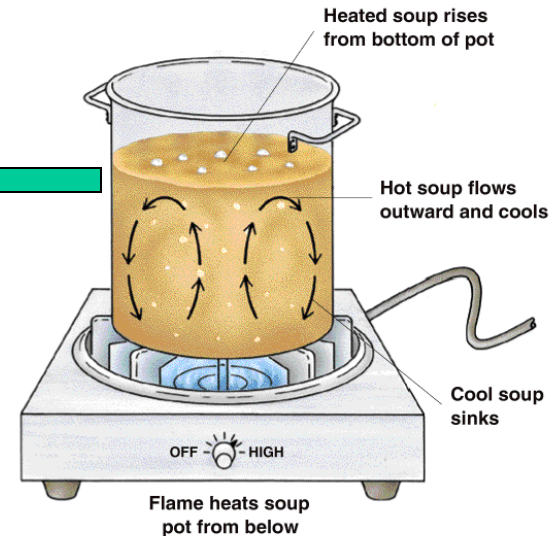


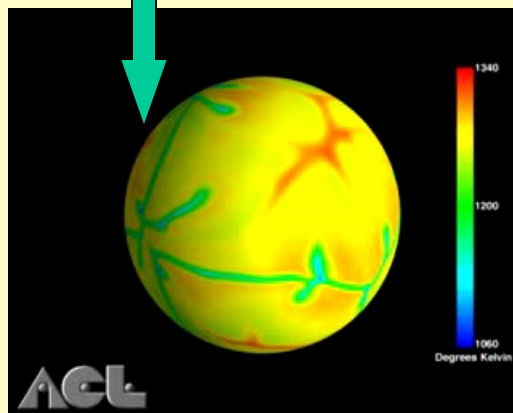
**Geologie na konci 20. století přešla od fixistických statických interpretací k dynamickému pojetí vývoje Země. Dnes dominující paradigma geologie – tektonika litosferických desek - zdůrazňuje výrazné horizontální přesuny kontinentálních bloků. Za jejich hnací motor je považována tepelná konvekce v plášti Země, která je určována tepelnou výměnou mezi žhavotekutým jádrem Země a poměrně chladným povrchem.**



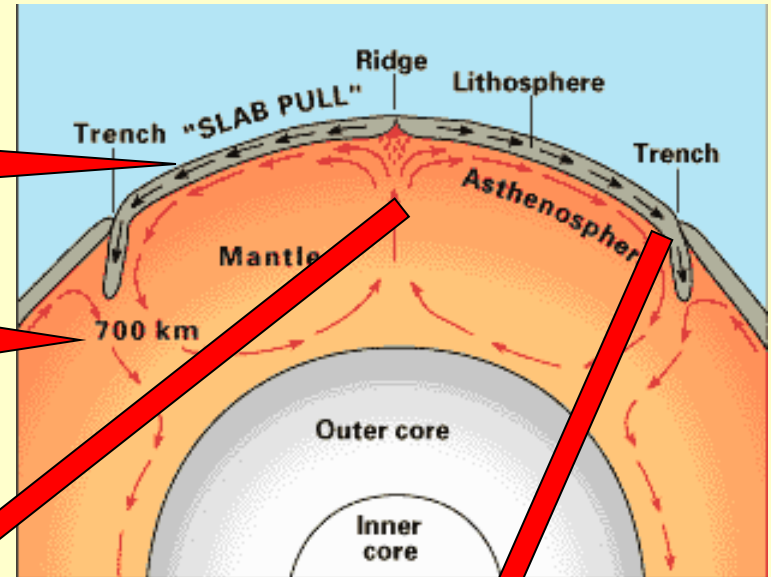
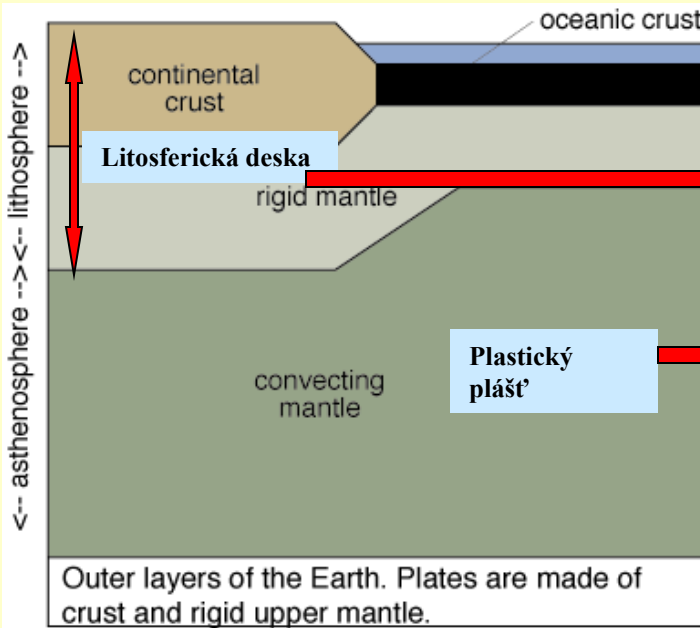
Thompson and Turk: Earth Science and the Environment, 2/e  
Figure 5.11



Saunders College Publishing

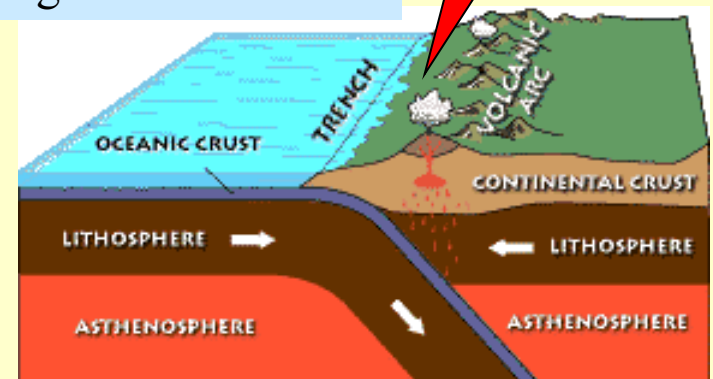
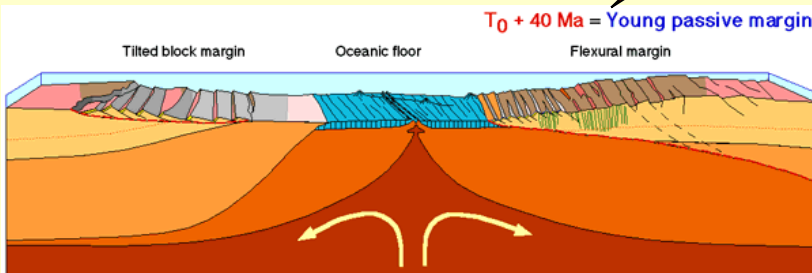


# Teorie litosferických desek předpokládá, že konvekční tepelné proudy v plastické části zemského pláště vedou v místech vzestupných tepelných proudů ke vzniku divergentních rozhraní a v místech sestupných tepelných proudů ke vzniku konvergentních rozhraní litosferických desek



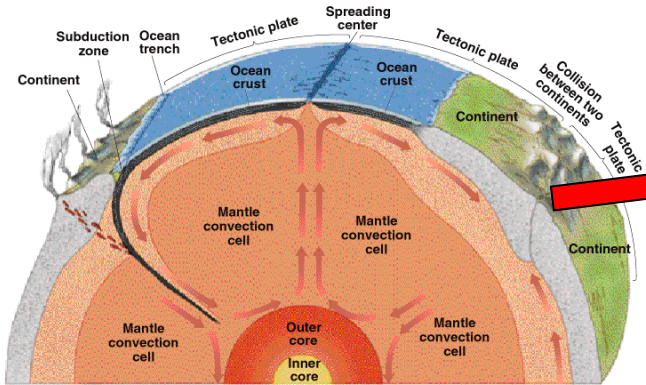
Konvergentní rozhraní

Divergentní rozhraní

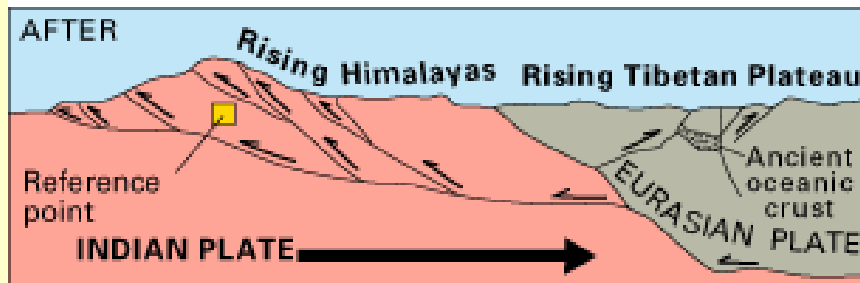
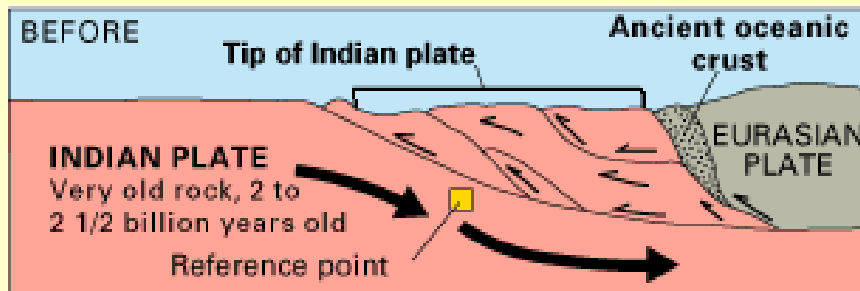
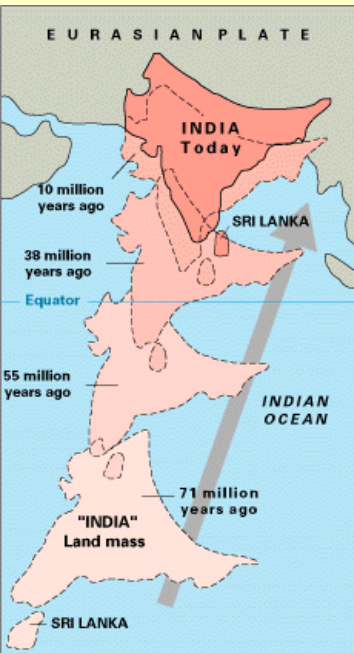
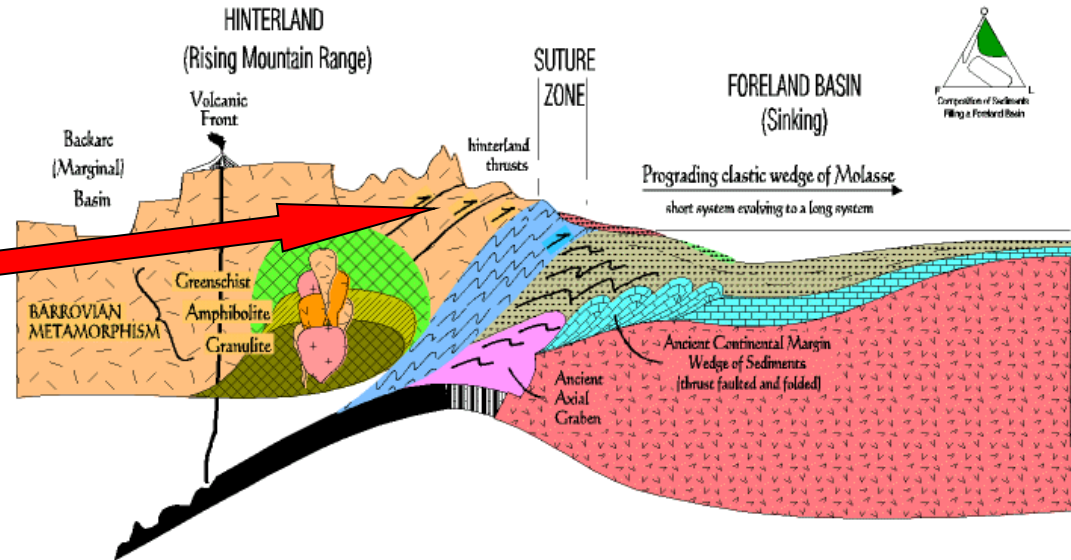


# Konvergentní rozhraní představují místa vrásnění, vulkanické činnosti, vzniku pohoří a kolize kontinentů

Thompson and Turk: Earth Science and the Environment, 2/e  
Figure 5.12

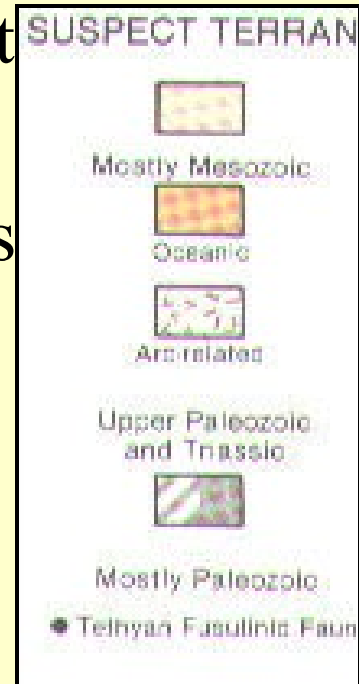
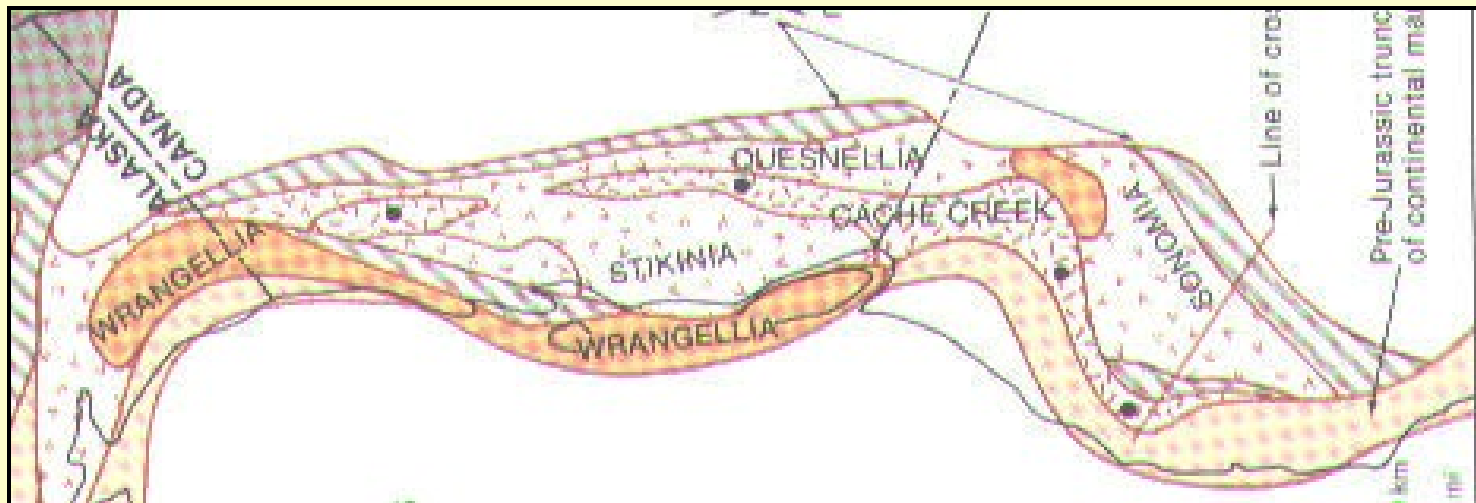


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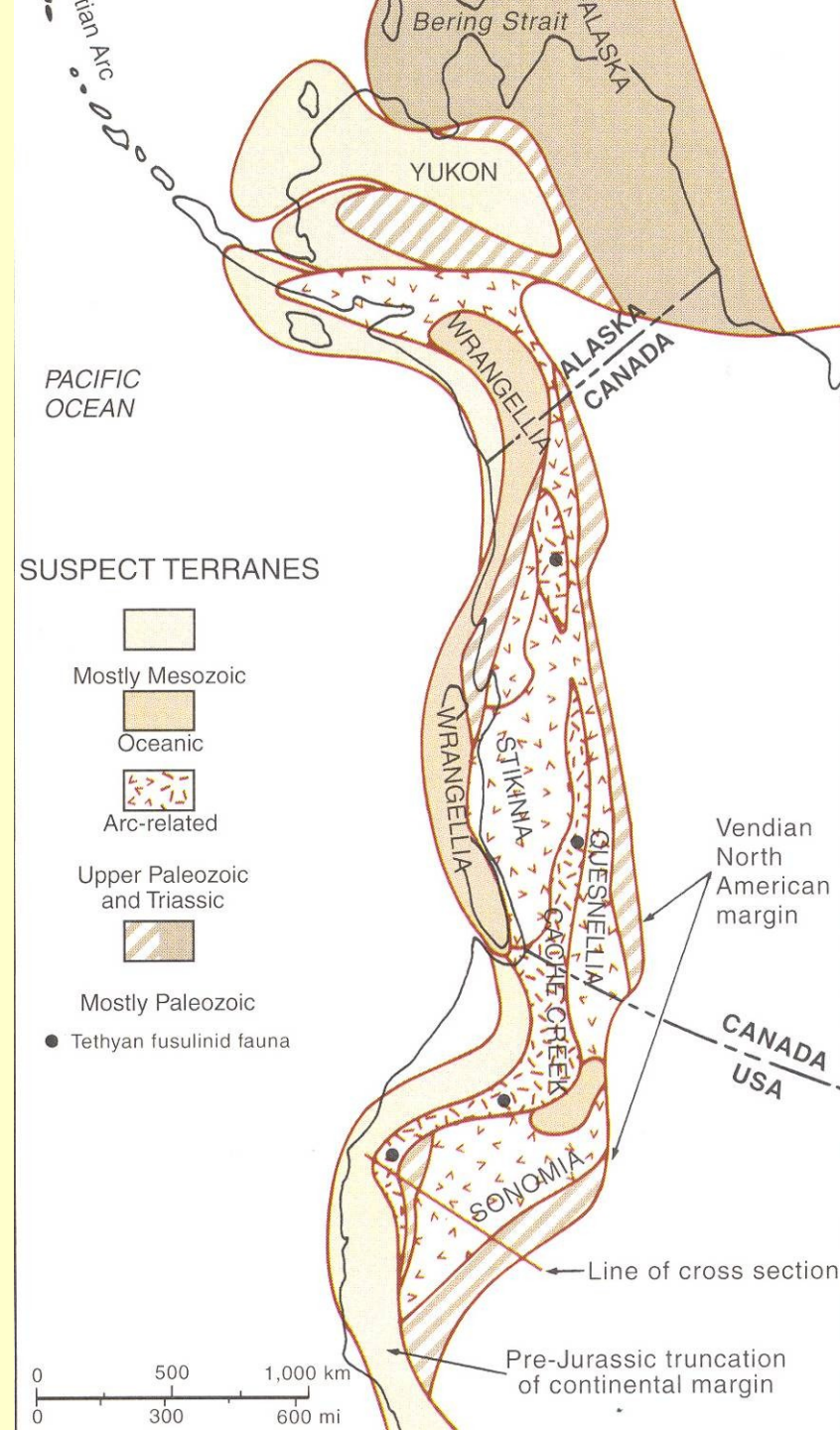
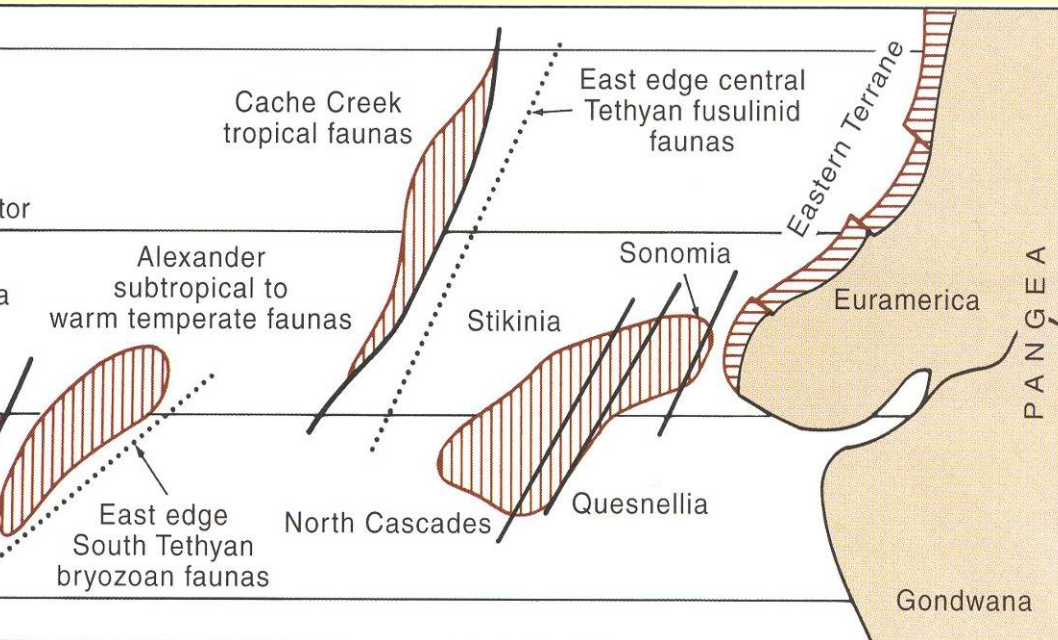
## Teránní akrece

- Cordillera an collage of microplates and arcs
  - accreted during the Paleozoic and Mesozoic
  - terrains have different rock types and fossil assemblages that cannot be correlated
  - suspect terrains--fault-bounded regions that be correlated

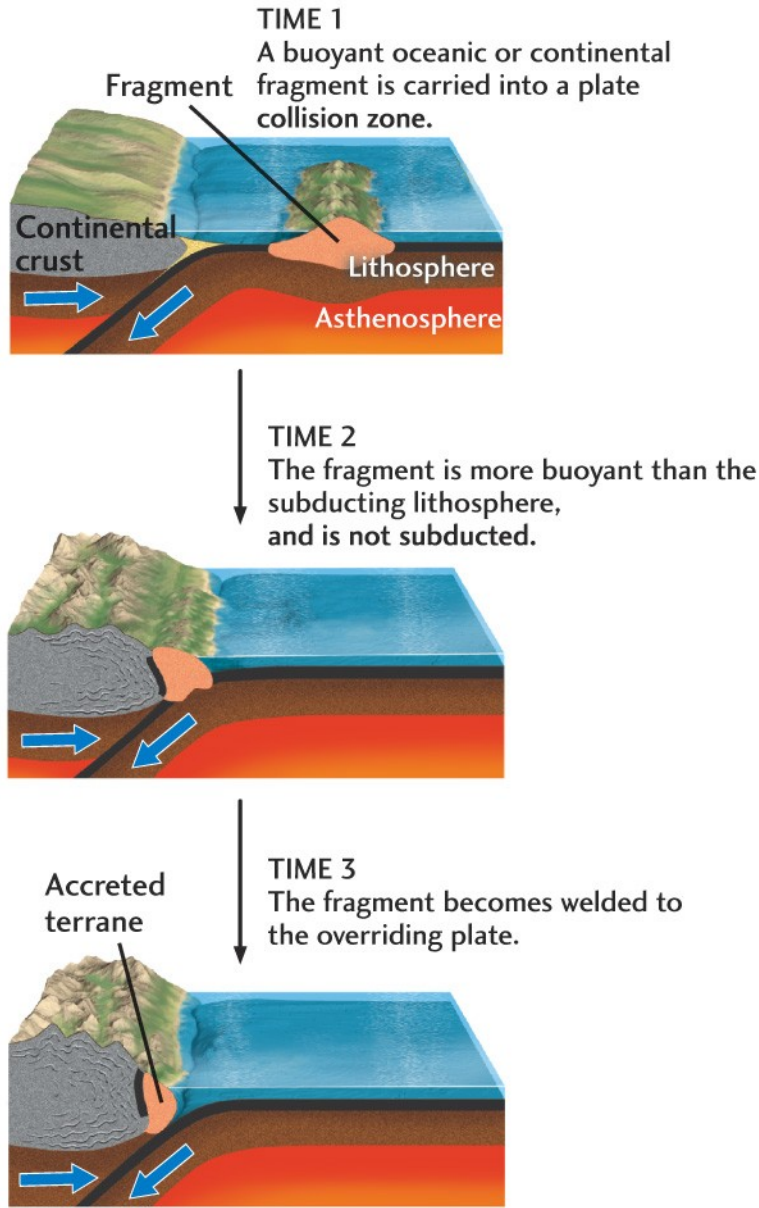


The Canadian Cordillera west of the Rockies is largely composed of displaced terranes, as are the easternmost sections of Siberia.

Origins of these terranes are best determined by the biogeographic affinities of the fossils in their sedimentary rocks.



## Accretion of a buoyant fragment to a continent

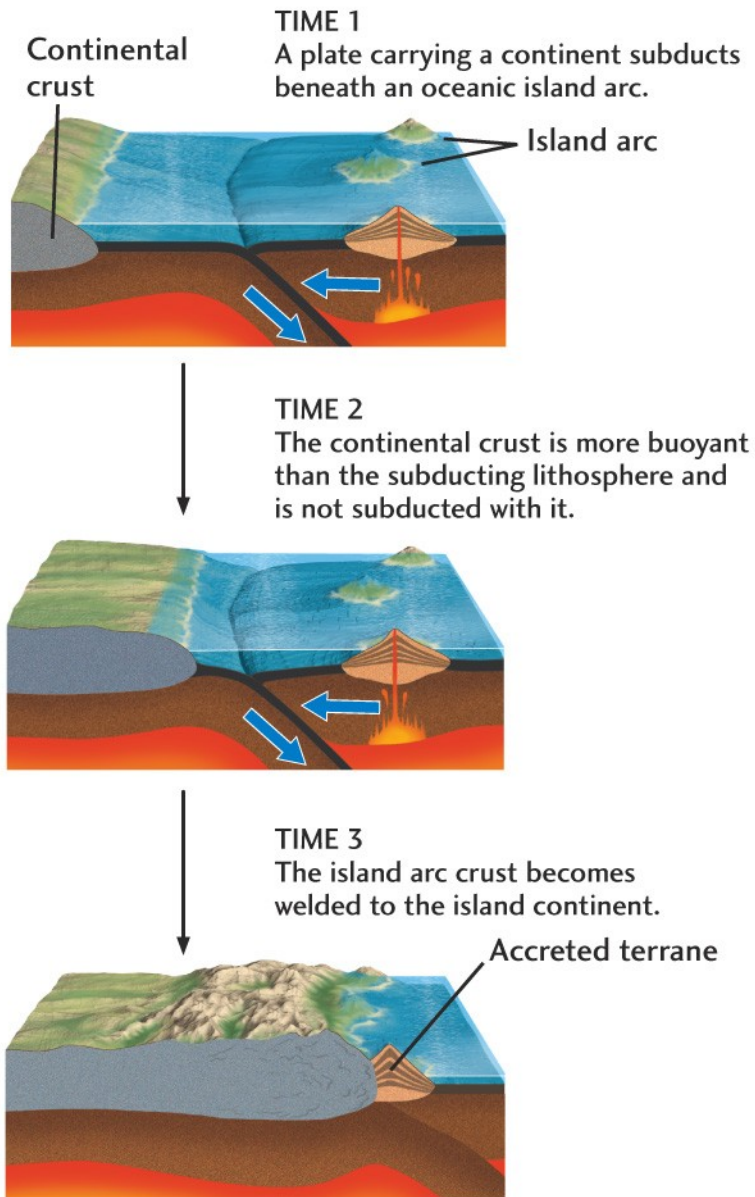


# How Continents Grow:

## Accretion of continental fragments

Fig. 20.12a

## Accretion of an island arc to a continent



# How Continents Grow:

## Accretion of island arcs

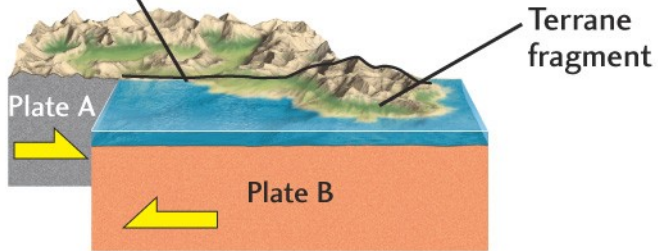
Fig. 20.12b

## Accretion along a transform fault

Transform fault

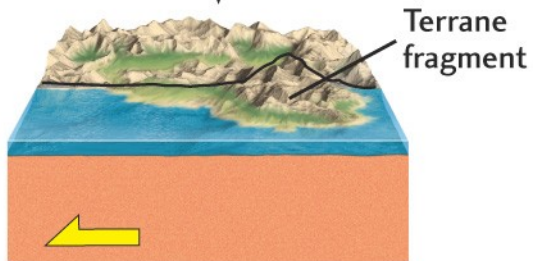
TIME 1

Two plates slide past each other along a transform fault.



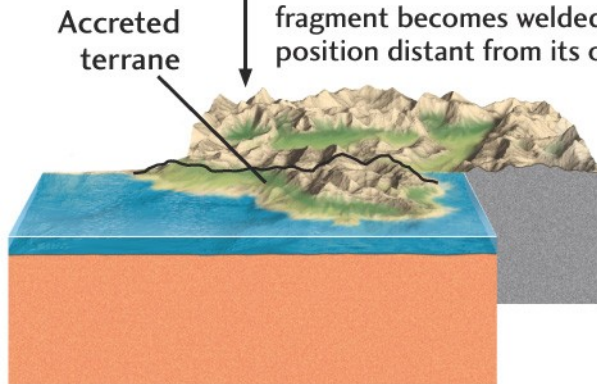
TIME 2

A terrane fragment on plate B is carried along the margin of plate A.



TIME 3

When the fault becomes inactive, the fragment becomes welded to plate A in a position distant from its original position.



# How Continents Grow:

## Accretion along transform faults

Fig. 20.12c

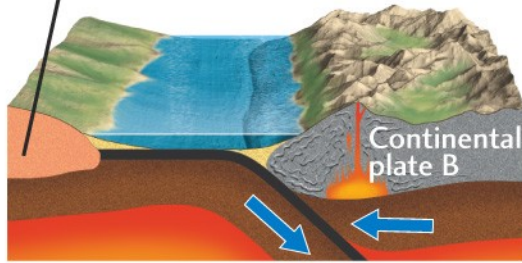


## Accretion by continental collision and rifting

Continental plate A

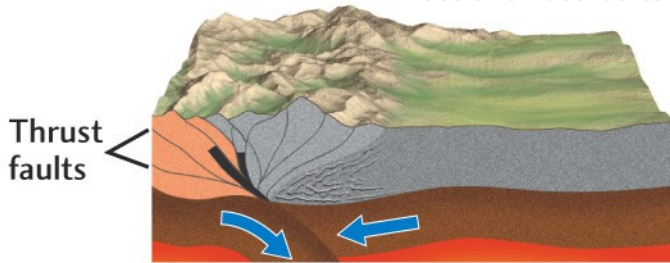
TIME 1

A plate carrying a continent subducts beneath another continental plate.



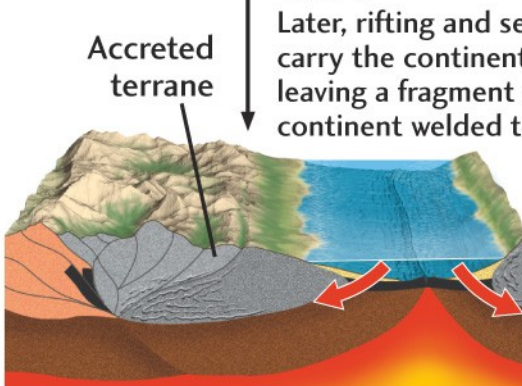
TIME 2

The continent is not subducted, so two continents are welded together along a set of thrust faults.



TIME 3

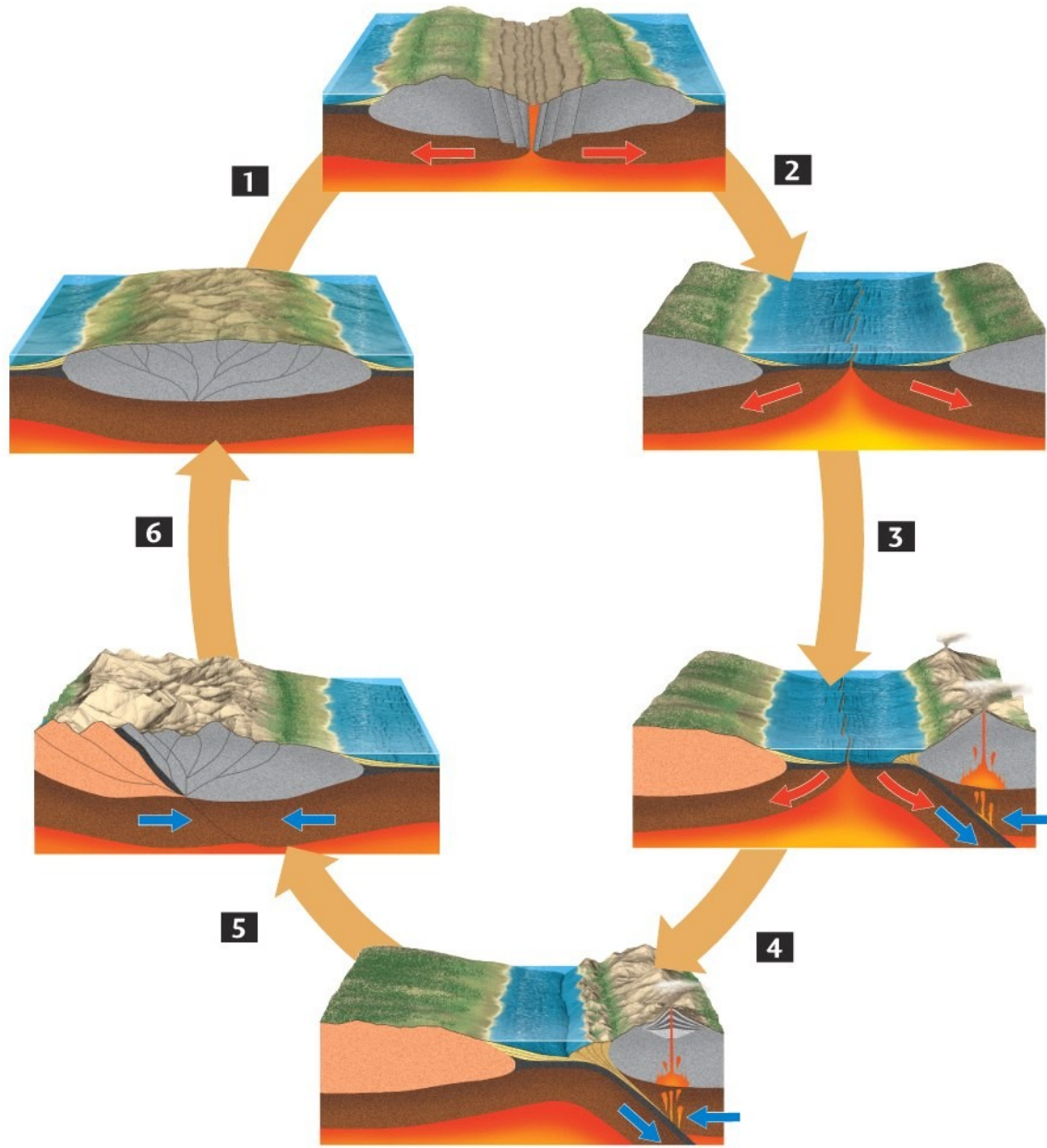
Later, rifting and seafloor spreading carry the continental plates apart, leaving a fragment of one continent welded to the other.



# How Continents Grow:

## Accretion by continental collision/ rifting

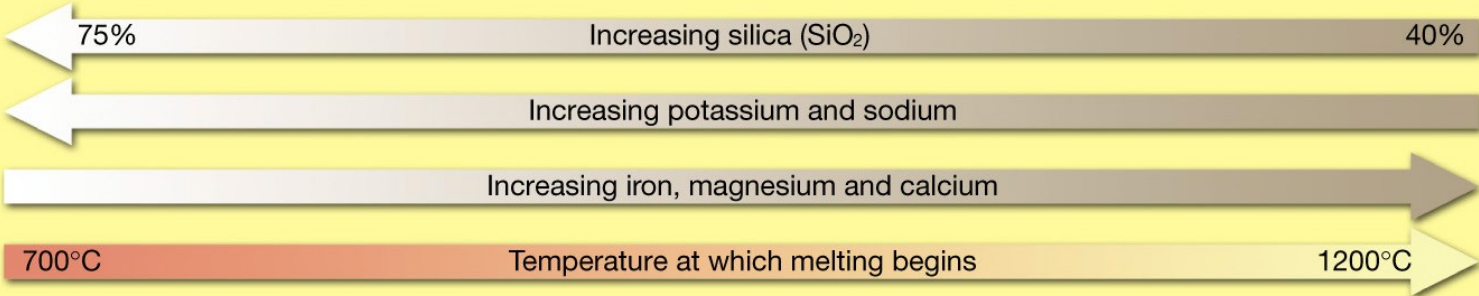
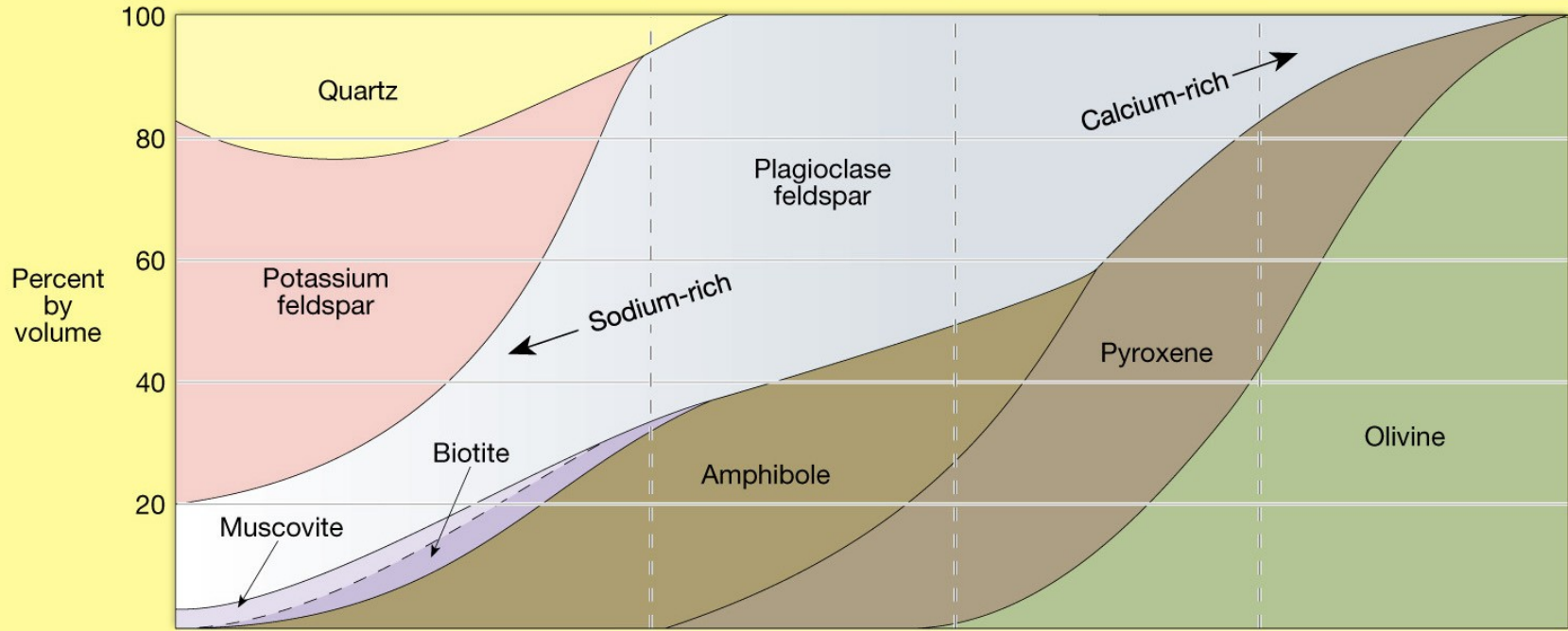
Fig. 20.12d



# The Wilson Cycle

Fig. 20.18

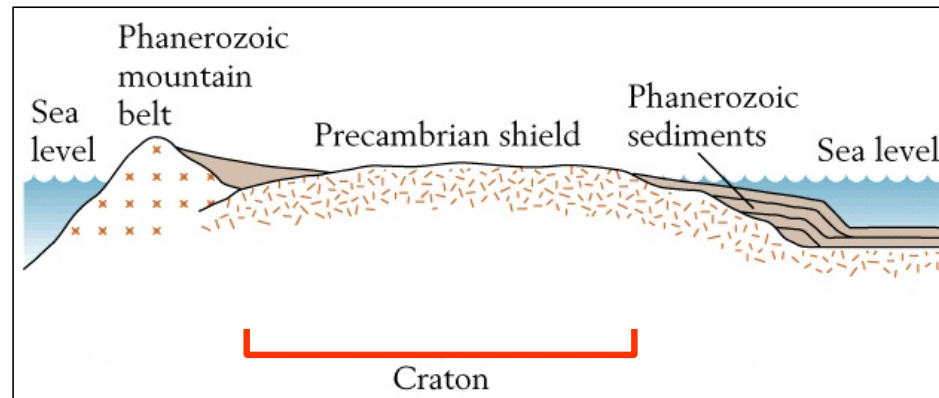
Composition	Felsic (Granitic)	Intermediate (Andesitic)	Mafic (Basaltic)	Ultramafic
Rock types	Granite/Rhyolite	Diorite/Andesite	Gabbro/Basalt	Peridotite/Komatiite

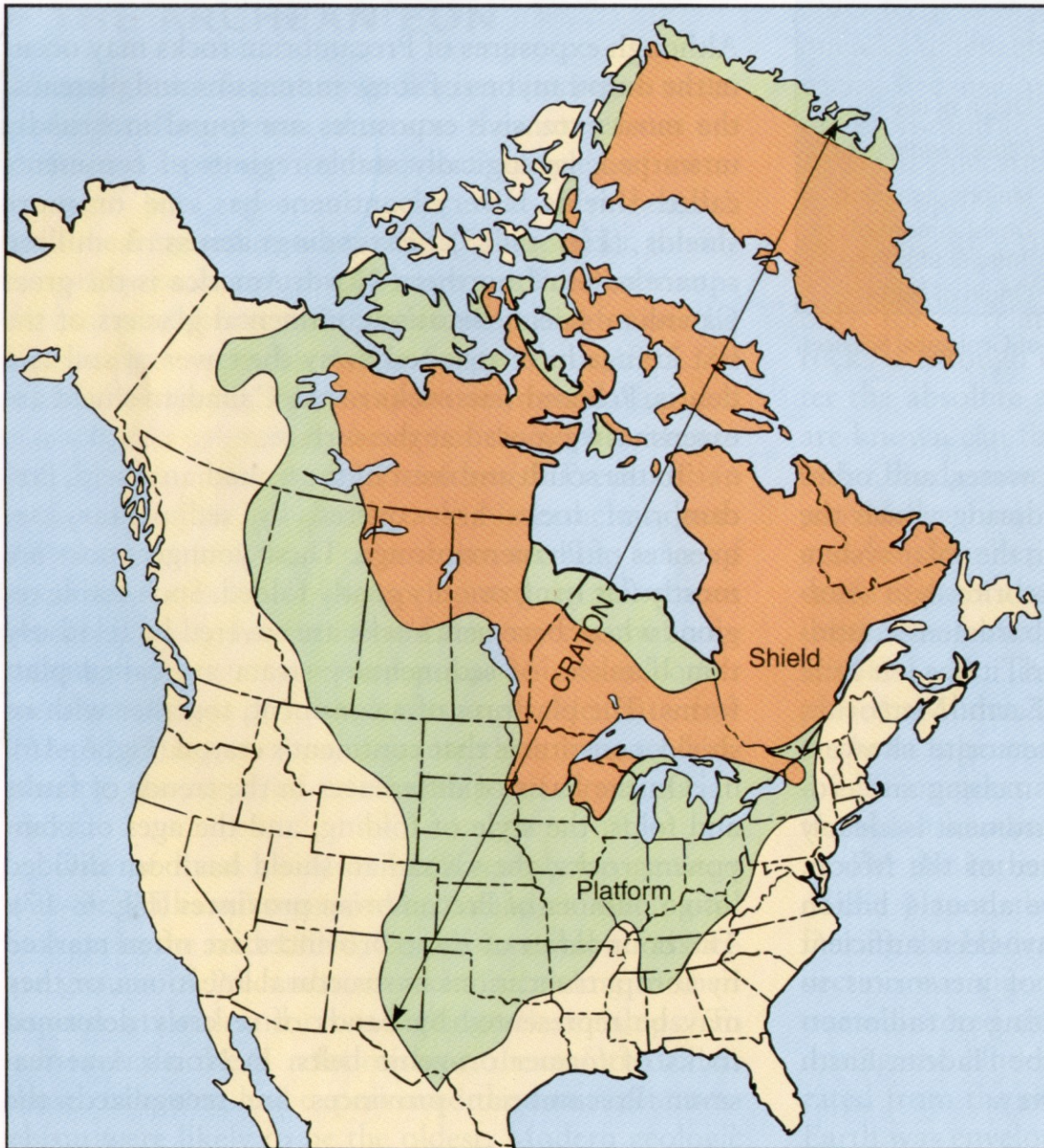




# Precambrian rocks

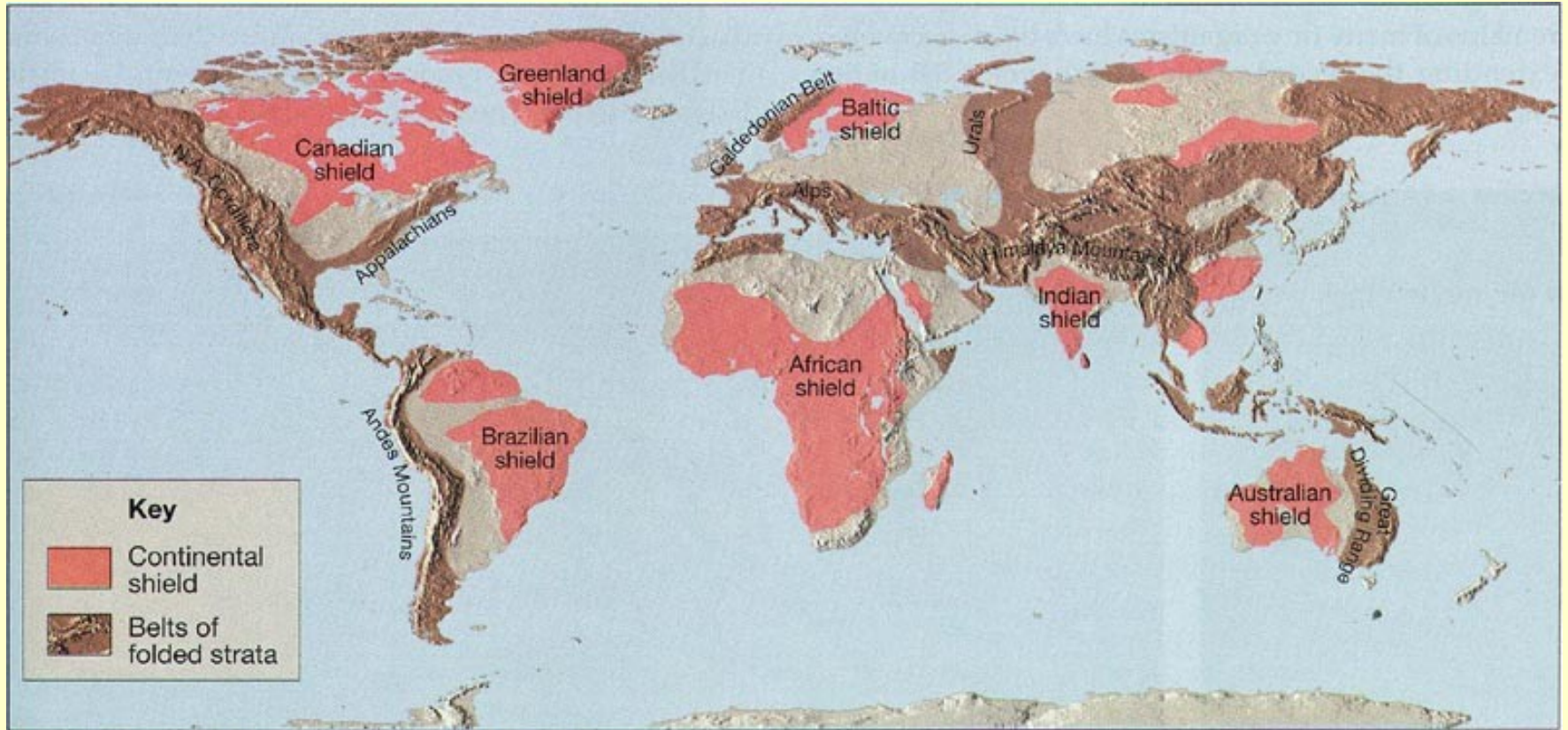
- **Cratons** are the large, stable, interior regions of continents that *have not undergone major deformation since Precambrian or early Phanerozoic time*
- Most Precambrian rocks are confined to cratons, where they may be exposed in a “**Precambrian shield**”





**FIGURE 6-16** North American craton, shield, and platform. 🌐

What is the difference between shield and platform?



# World Tectonic Provinces

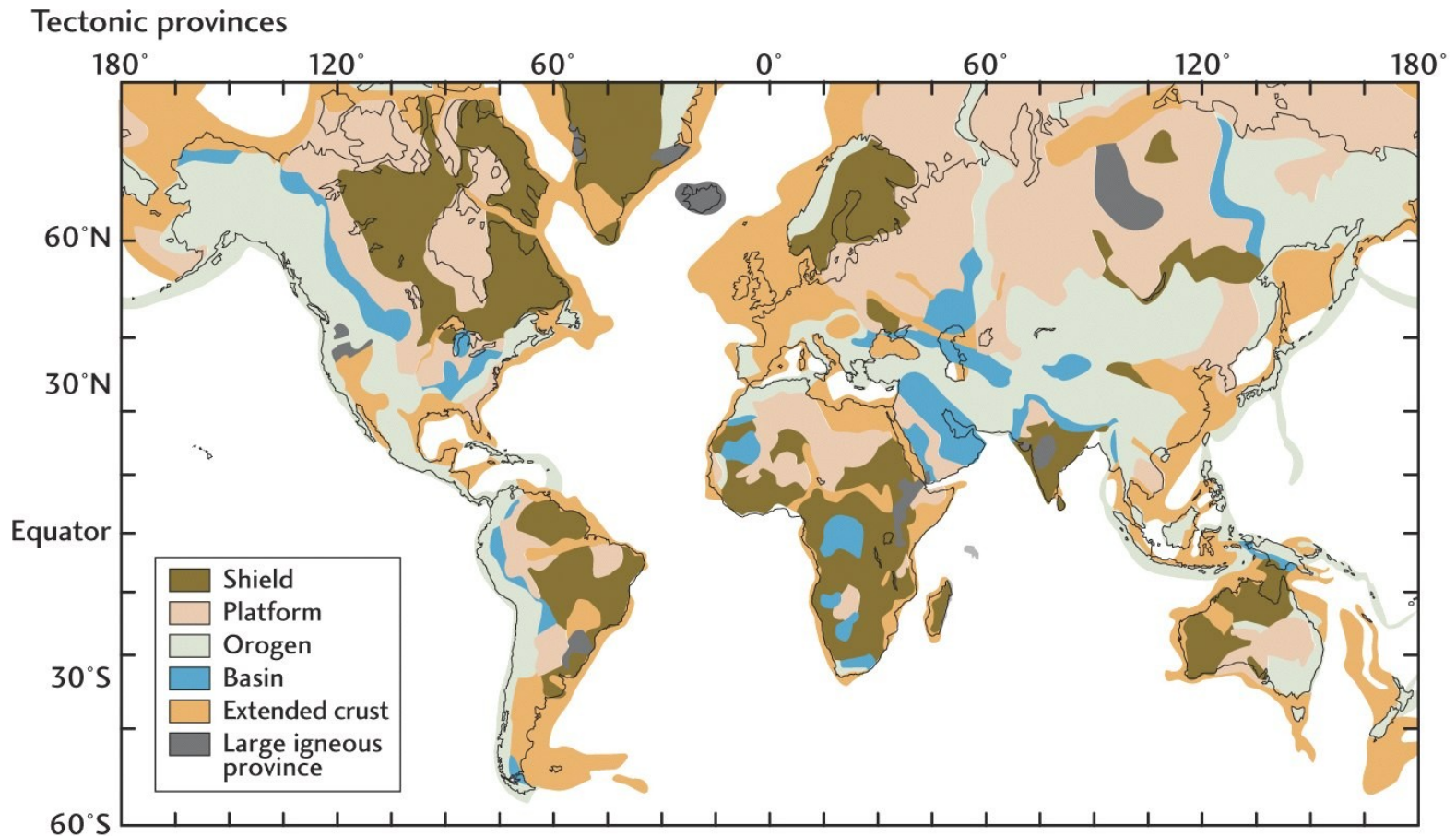


Fig. 20.8a



# Hlavní etapy vrásnění v prvohorách - čtvrtohorách

Časová škála

Vrásnění

Paleogeografie

245 Ma

mladší

karbon perm

Prvohory

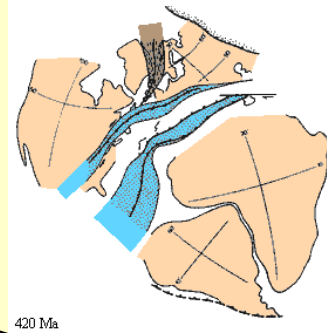
starší

karbon ordovik silur devon

545 Ma

Prekambrium

Variské  
vrásnění



420 Ma

Vznik Pangei

Kaledonské  
vrásnění

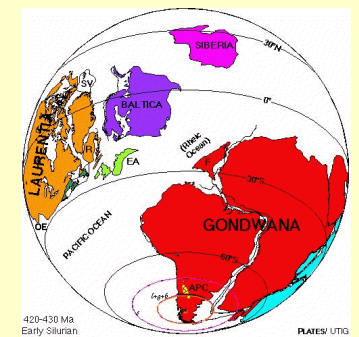
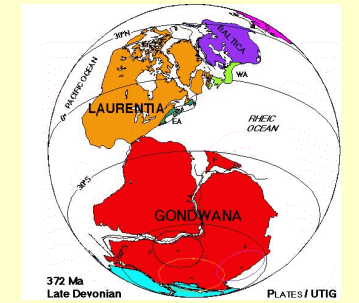
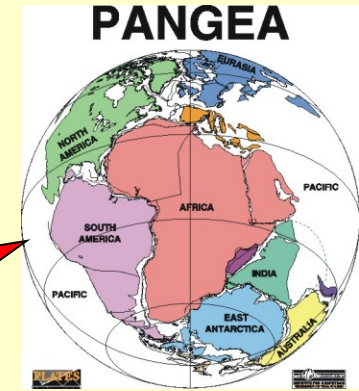
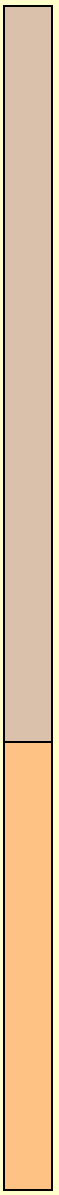
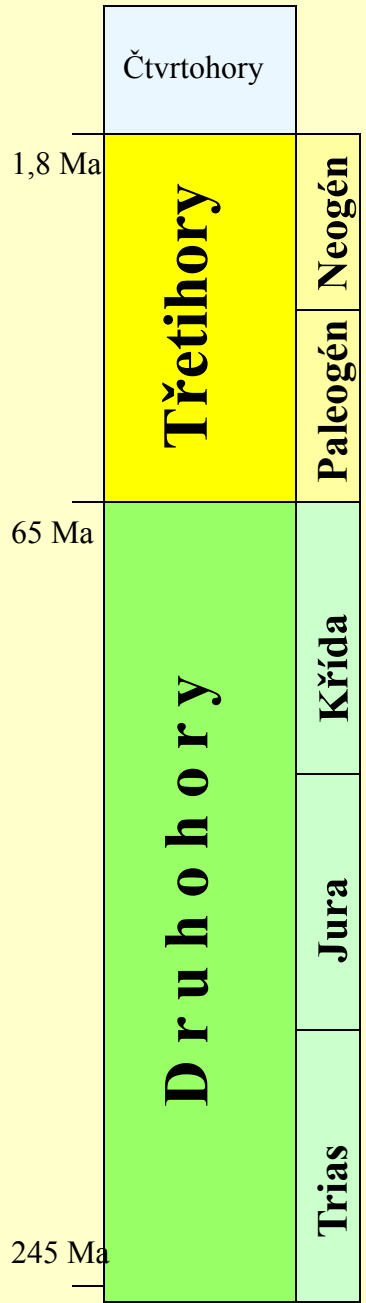


Fig. 17  
Dobson, 1997, GSA Bulletin

# Časová škála

# Vrásnění

# Paleogeografie



Alpinské  
vrásnění

Kimerské  
vrásnění

