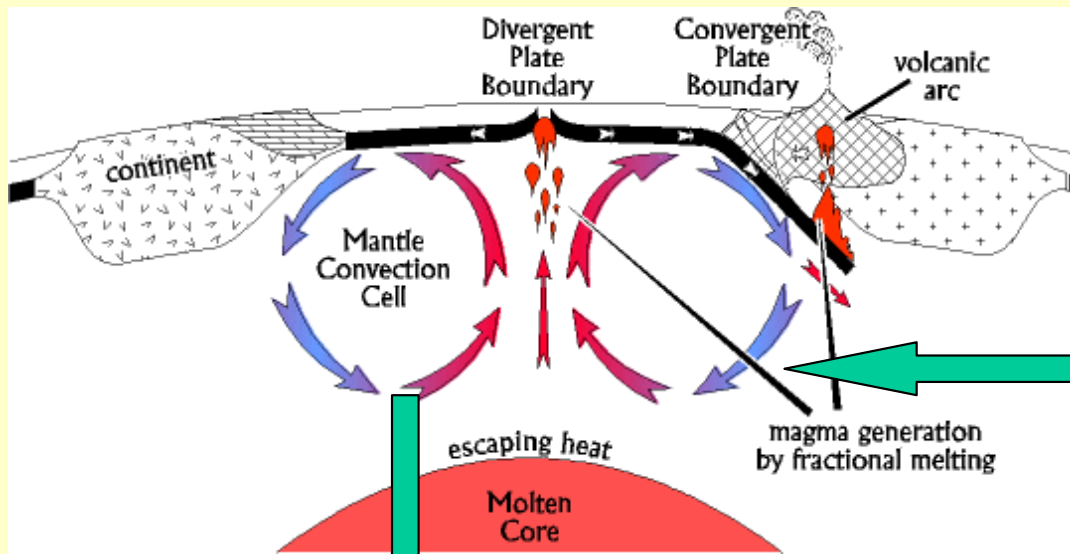
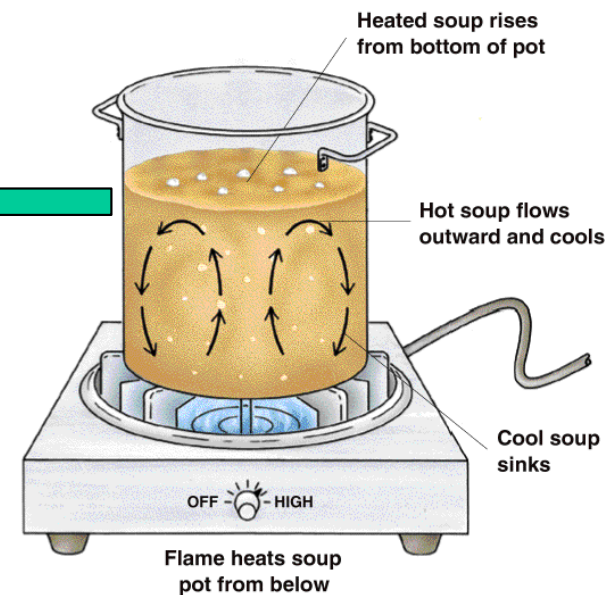


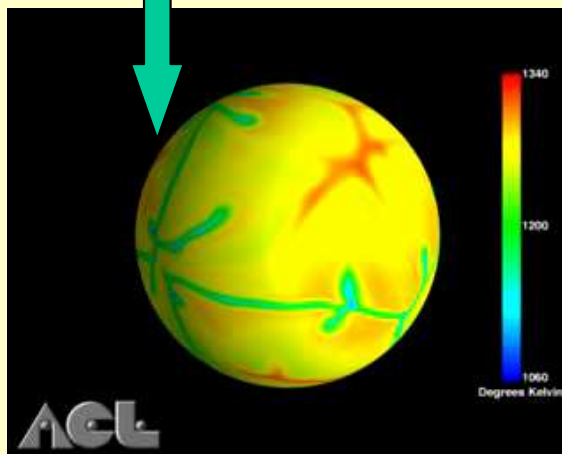
Geologie na konci 20. století přešla od fixistických statických interpretací k dynamickému pojetí vývoje Země. Dnes dominující paradigma geologie – tektonika litosferických desek - zdůrazňuje výrazné horizontální přesuny kontinentálních bloků. Za jejich hnací motor je považována tepelná konvekce v plášti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



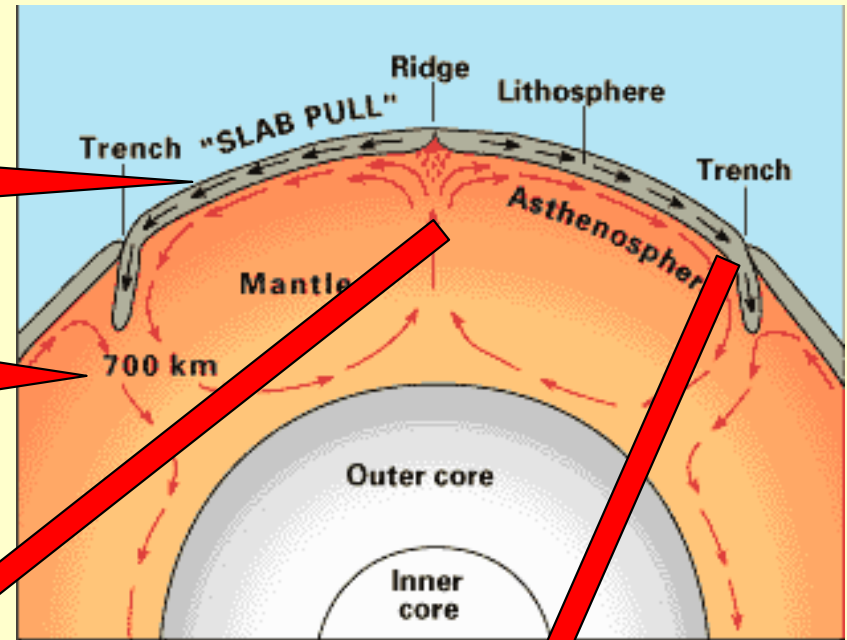
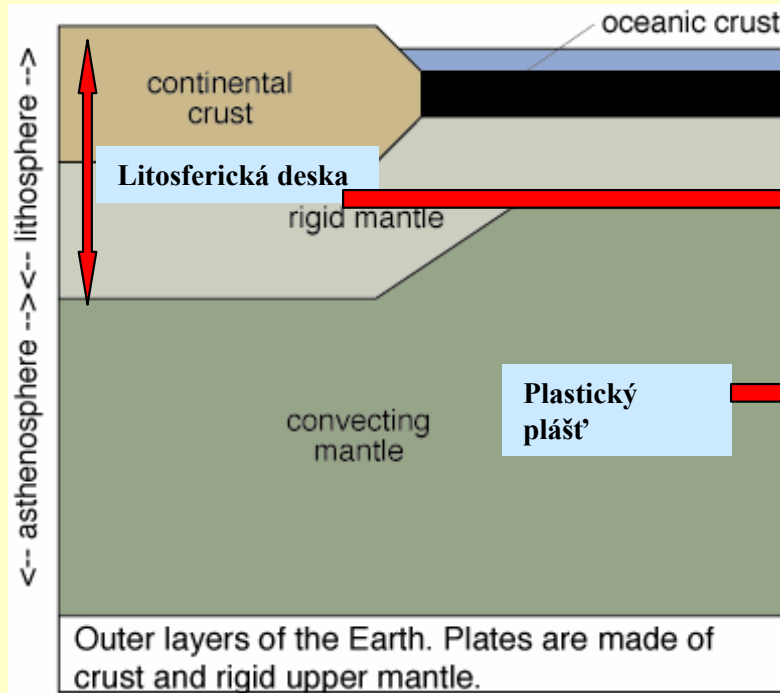
Thompson and Turk: Earth Science and the Environment, 2/e
Figure 5.11



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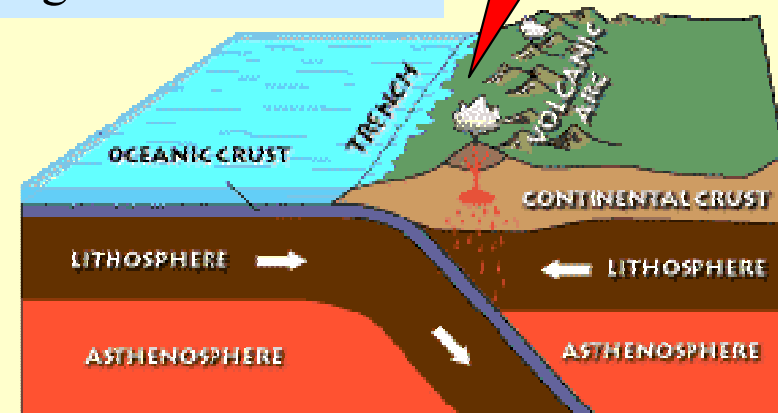
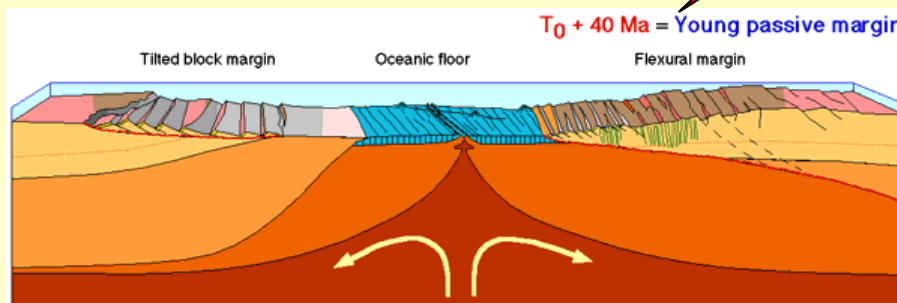


Teorie litosferických desek předpokládá, že konvekční tepelné proudy v plastické části zemského pláště vedou v místech vzestupných tepelných proudů ke vzniku divergentních rozhraní a v místech sestupných tepelných proudů ke vzniku konvergentních rozhraní litosferických desek



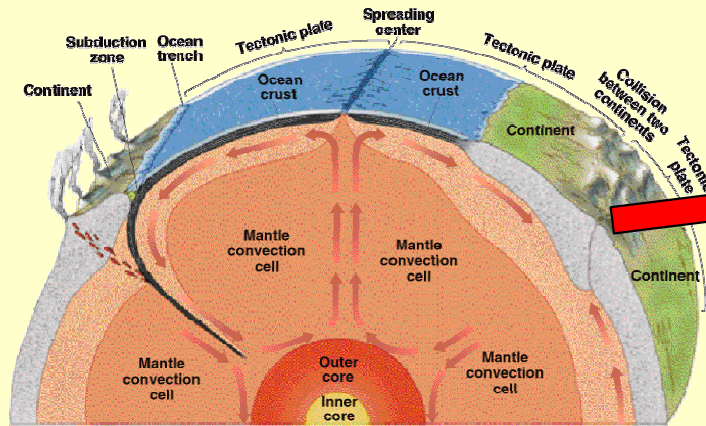
Konvergentní rozhraní

Divergentní rozhraní

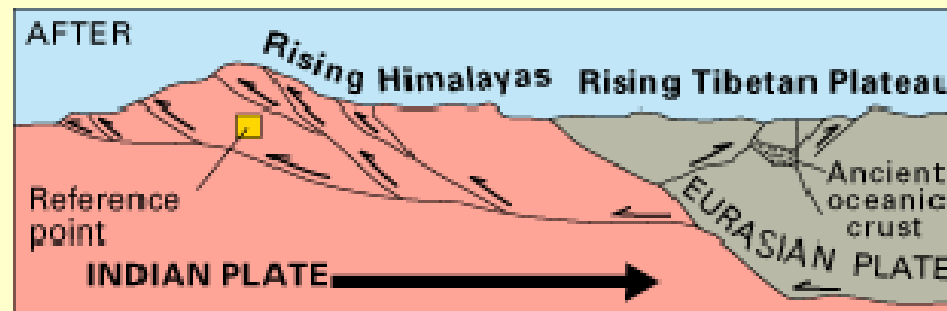
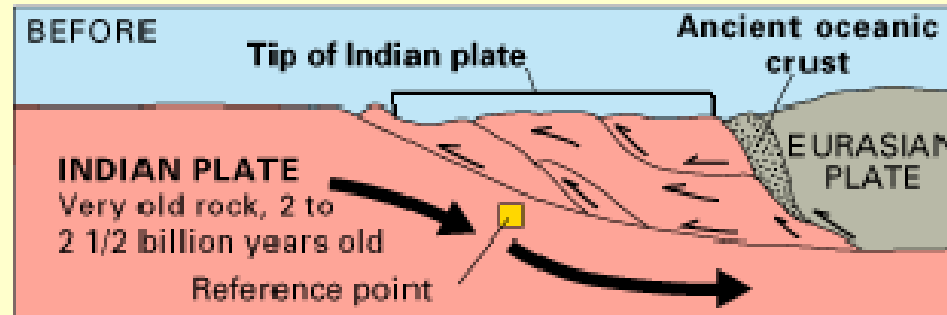
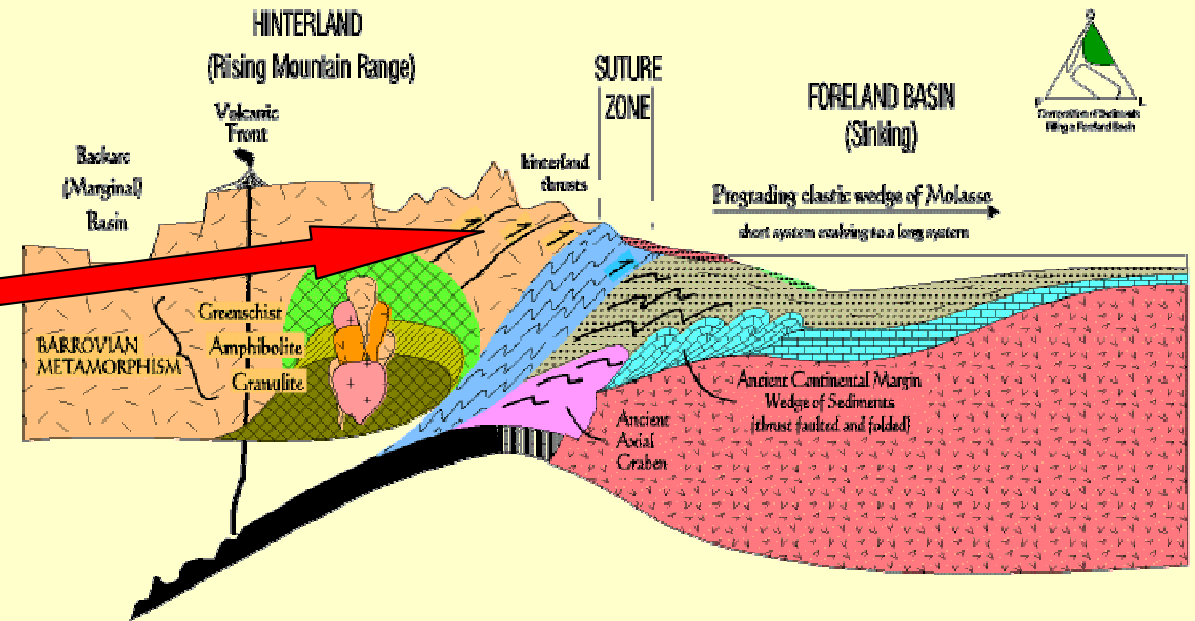


Konvergentní rozhraní představují místa vrásnění, vulkanické činnosti, vzniku pohoří a kolize kontinentů

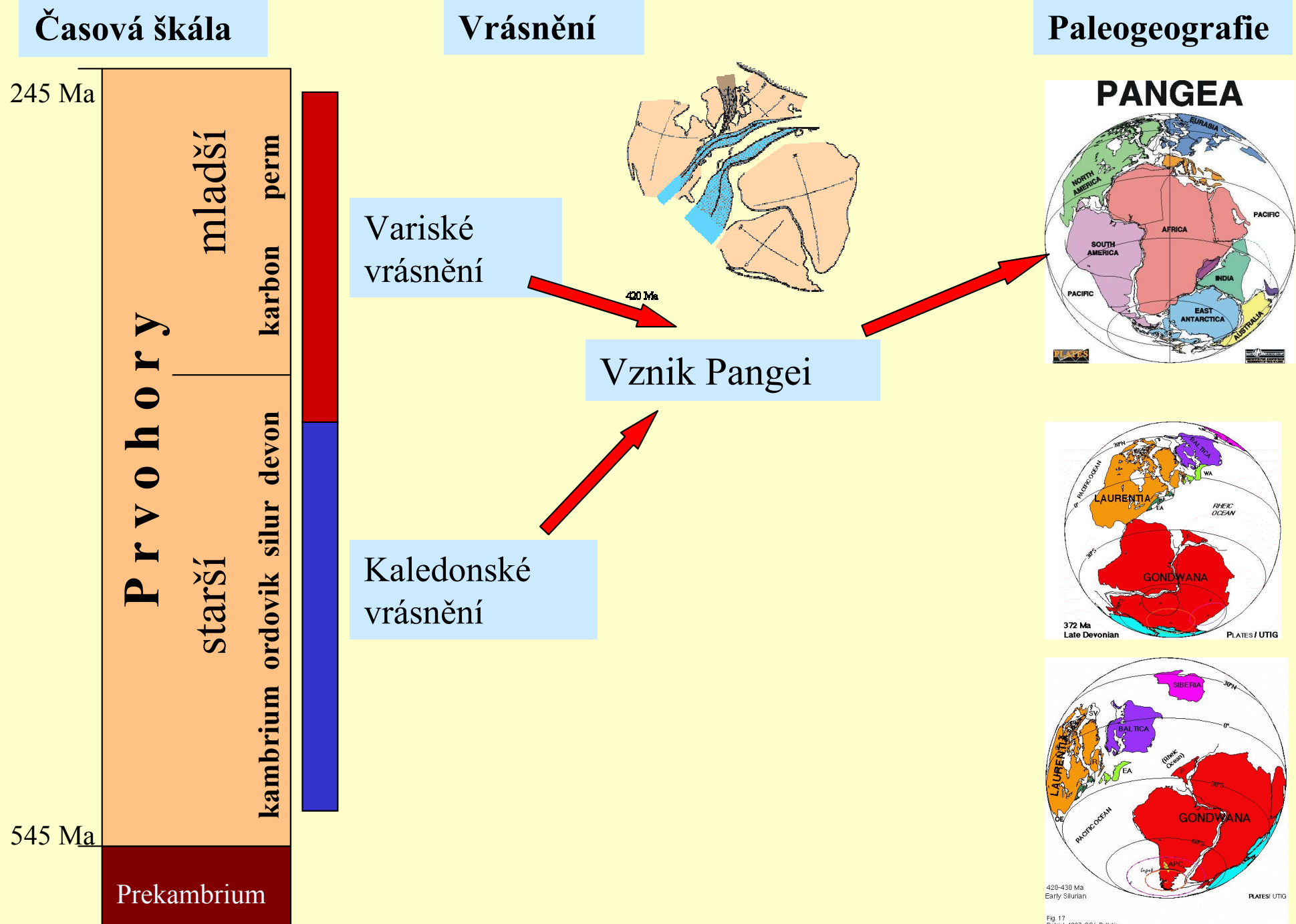
Thompson and Turk: Earth Science and the Environment, 2/e
Figure 5.12



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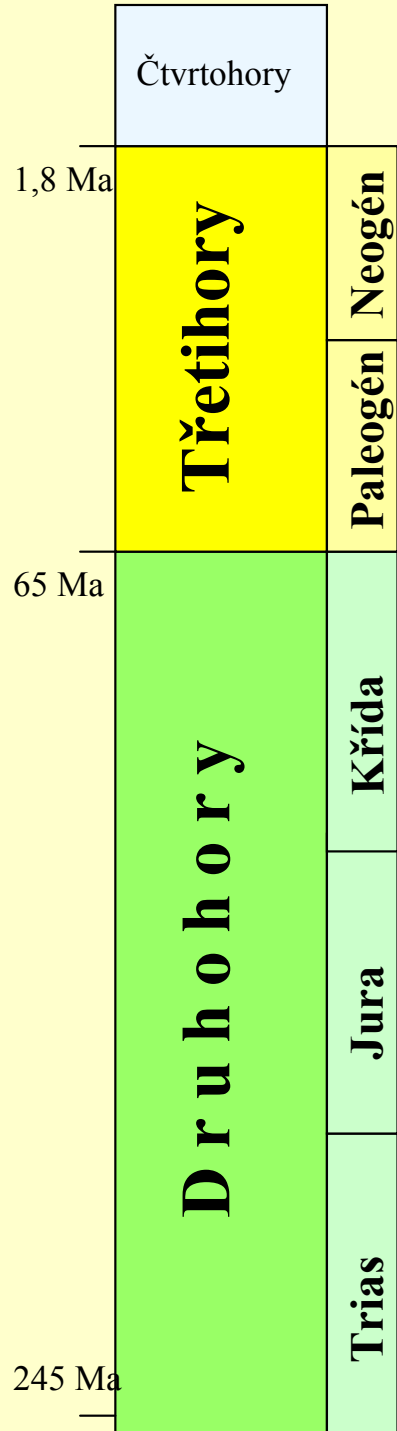
Hlavní etapy vrásnění v prvohorách - čtvrtohorách



Časová škála

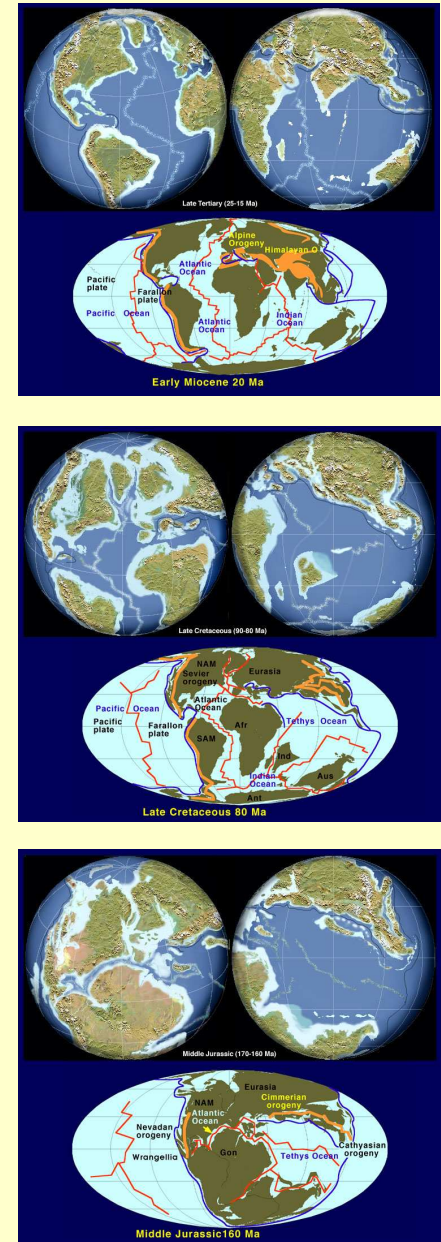
Vrásnění

Paleogeografie



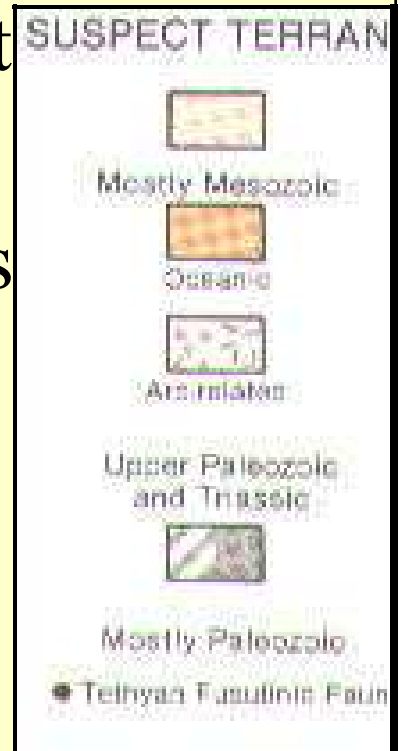
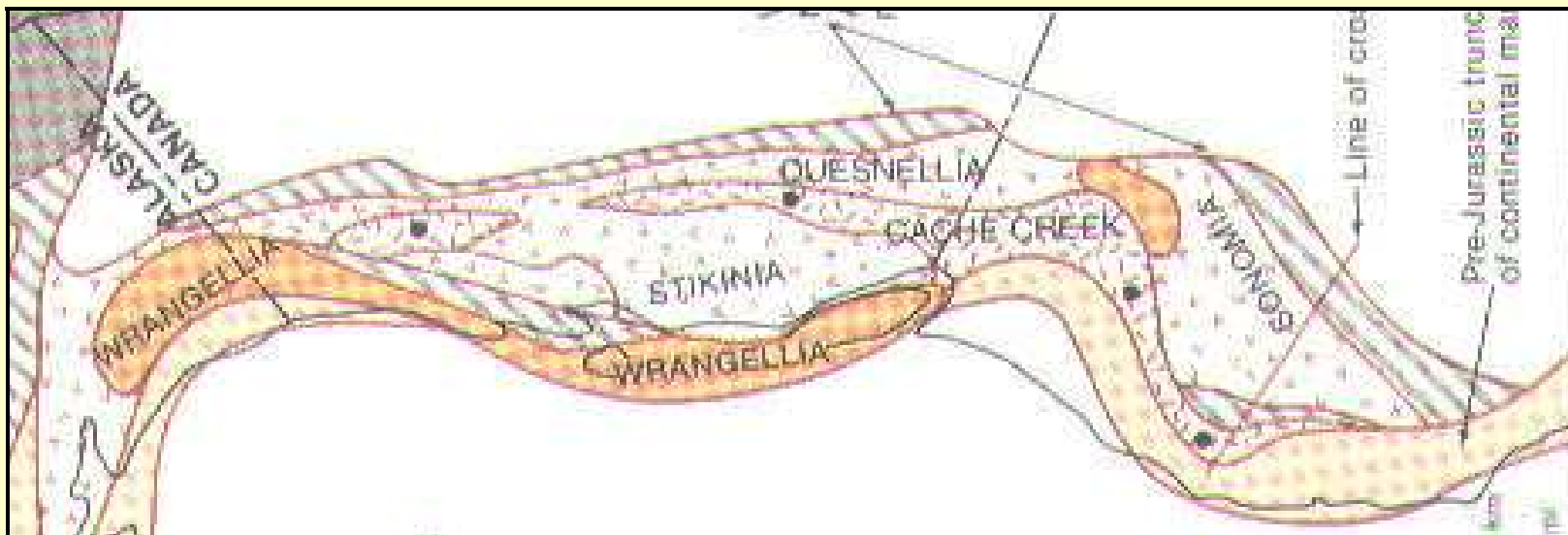
Alpinské
vrásnění

Kimerské
vrásnění



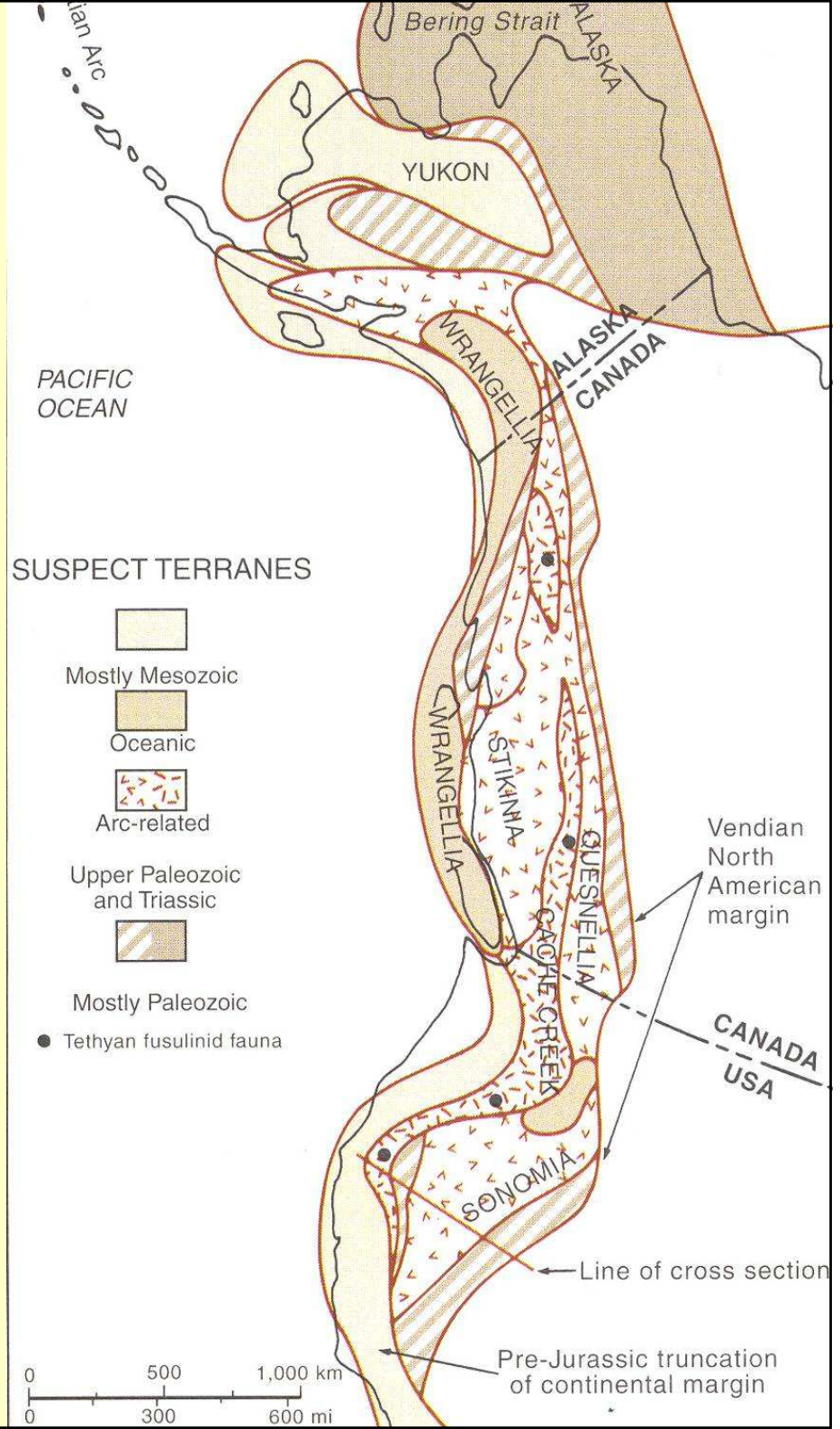
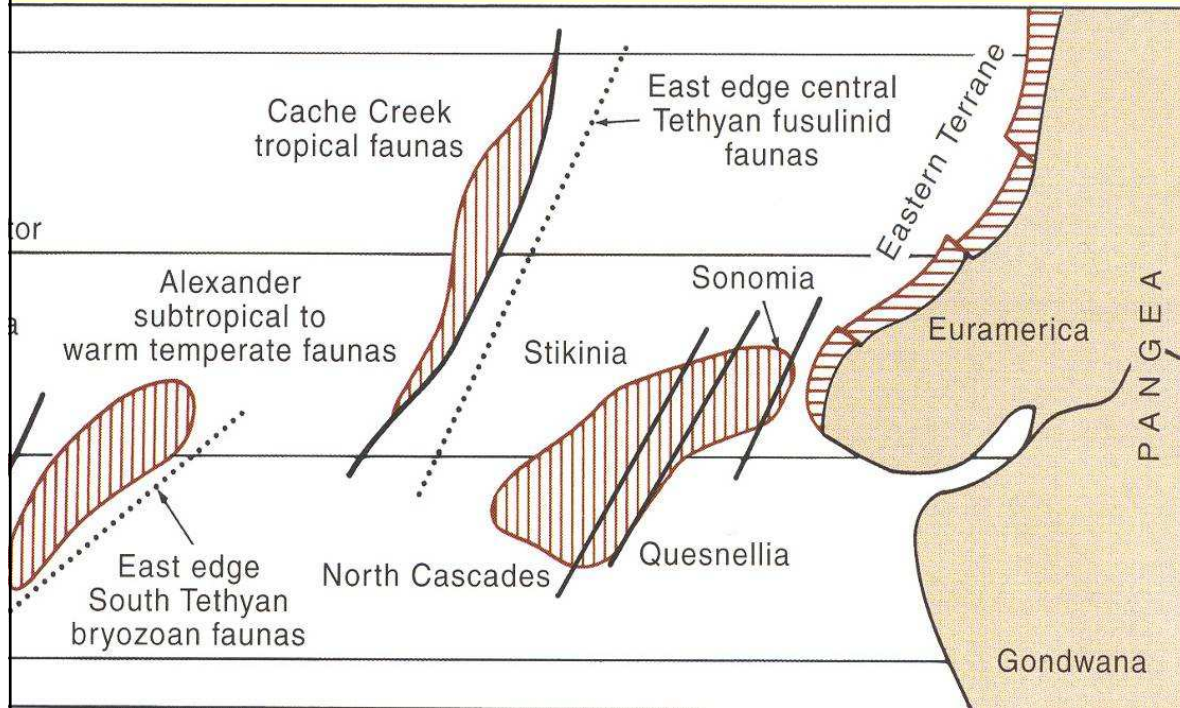
Teránní akrece

- 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

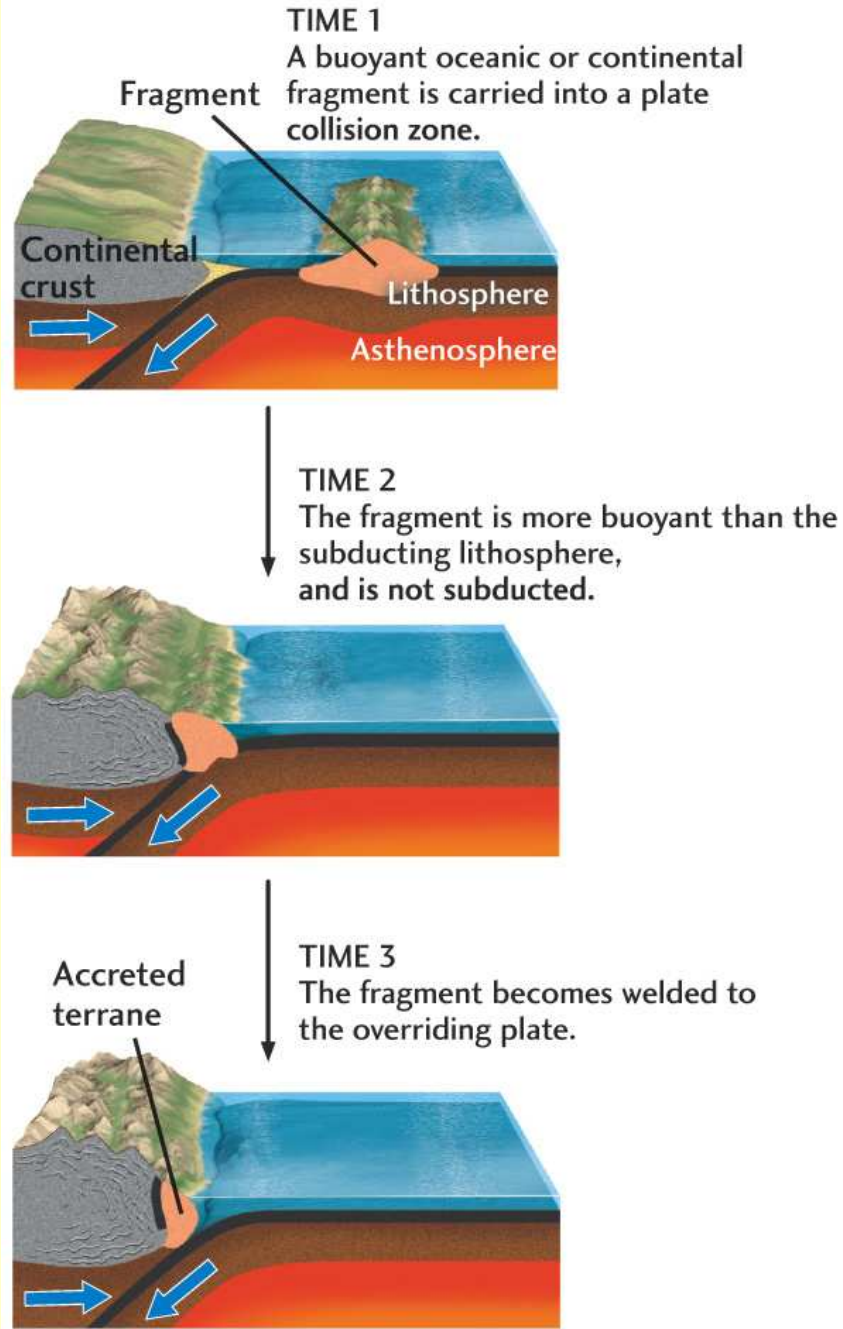


The Canadian Cordillera west of the Rockies is largely composed of displaced terranes, as are the easternmost sections of Siberia.

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

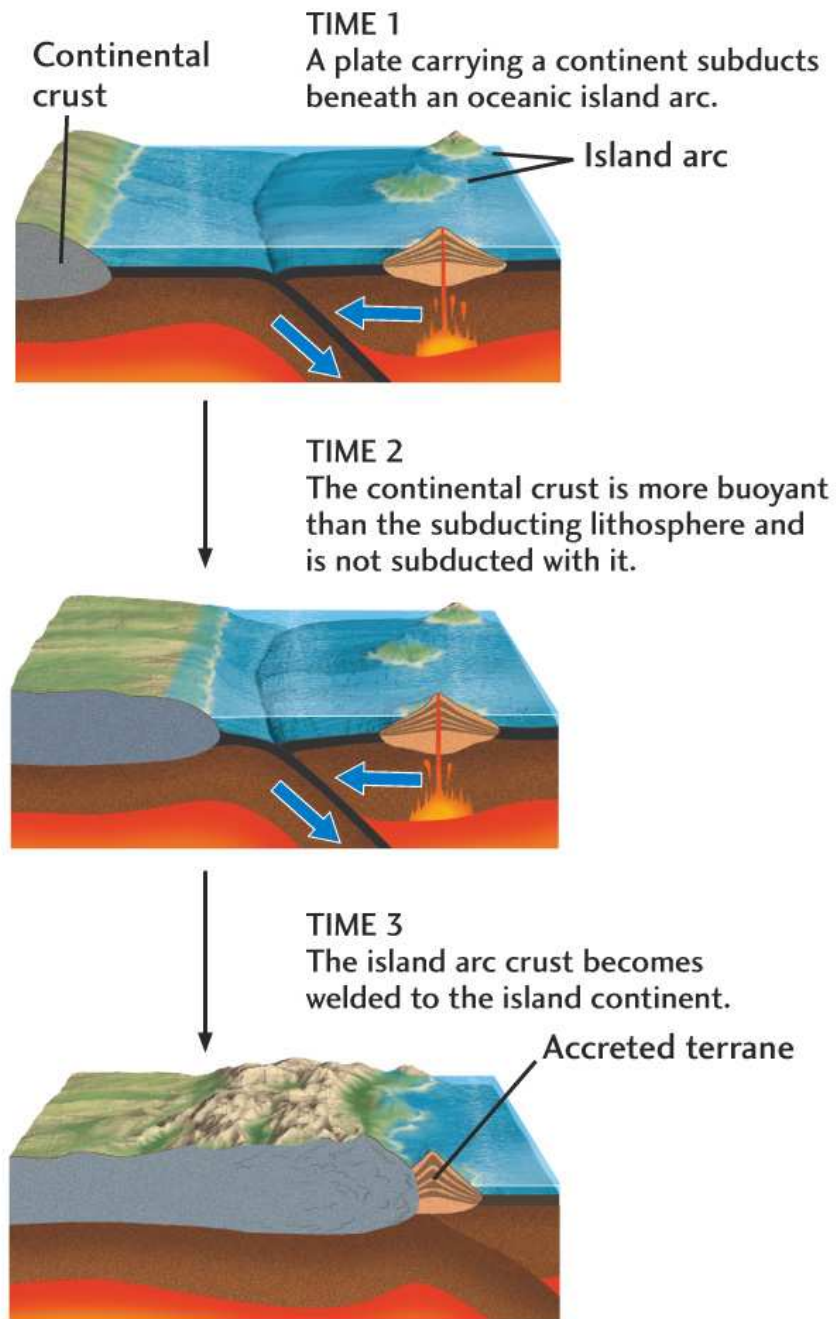


How Continents Grow:

Accretion of continental fragments

Fig. 20.12a

Accretion of an island arc to a continent



How Continents Grow:

Accretion of island arcs

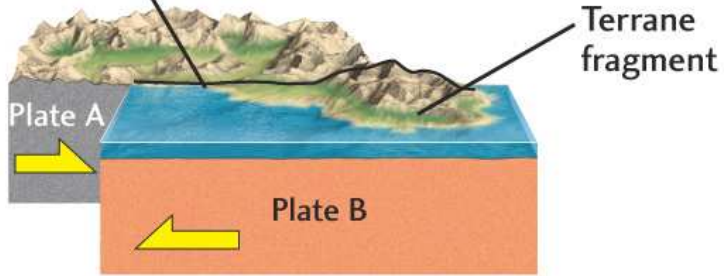
Fig. 20.12b

Accretion along a transform fault

Transform fault

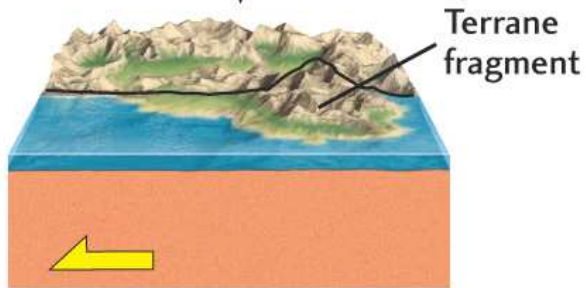
TIME 1

Two plates slide past each other along a transform fault.



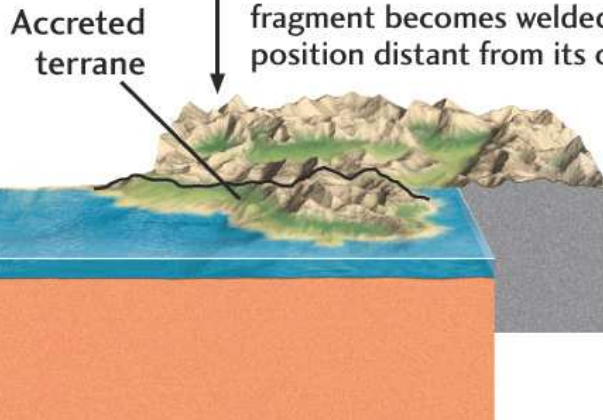
TIME 2

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:

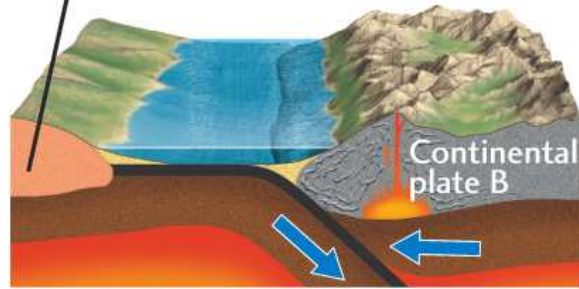
Accretion along transform faults

Fig. 20.12c

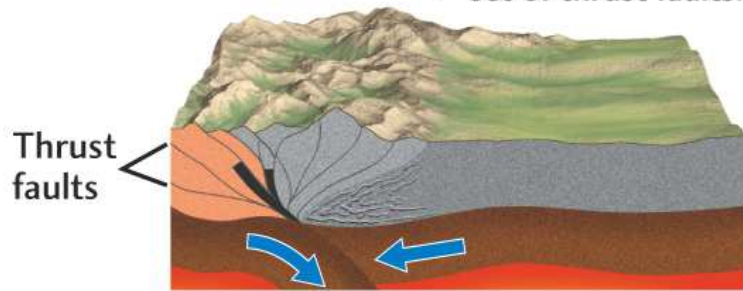
Accretion by continental collision and rifting

Continental plate A

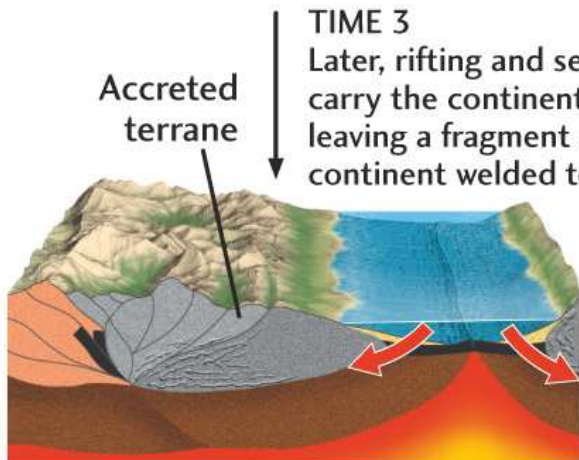
TIME 1
A plate carrying a continent subducts beneath another continental plate.



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

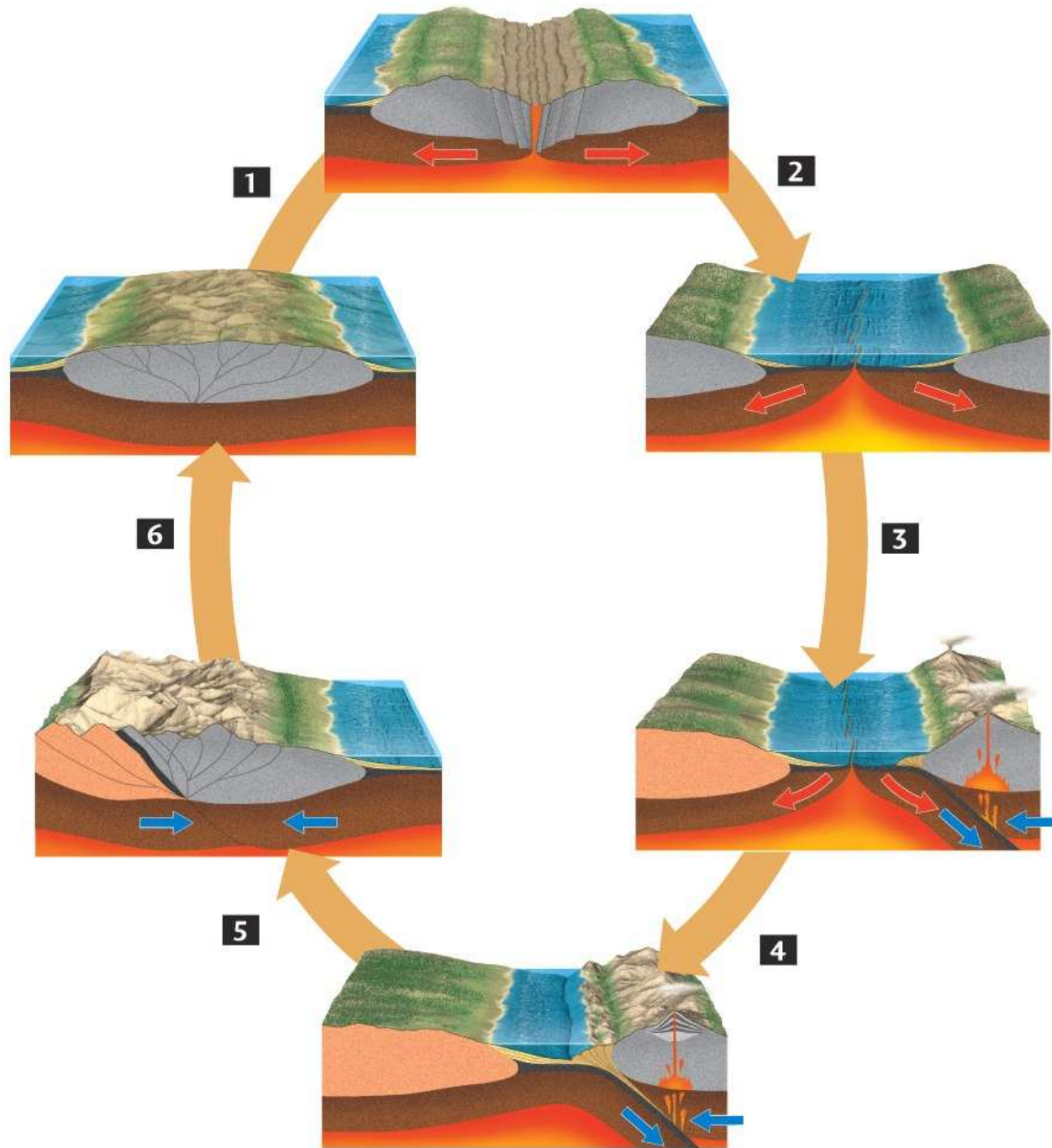
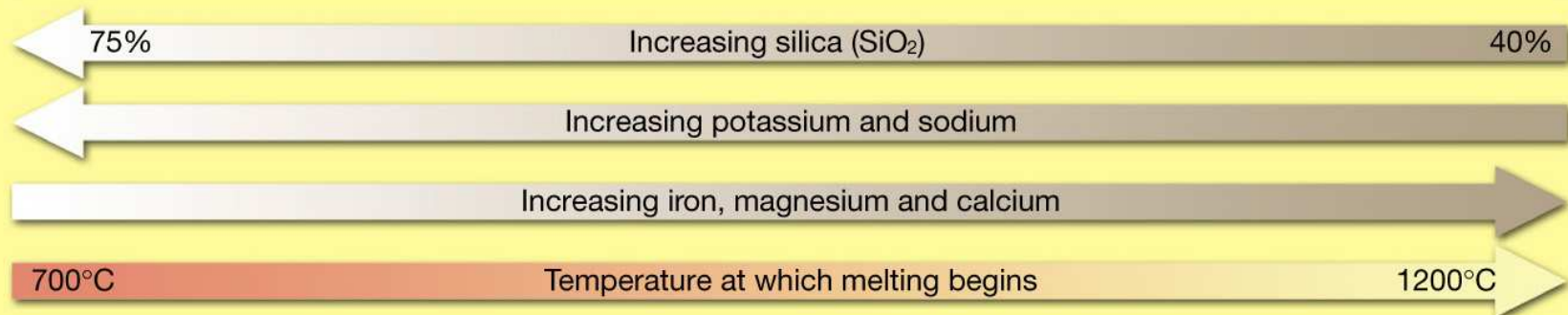
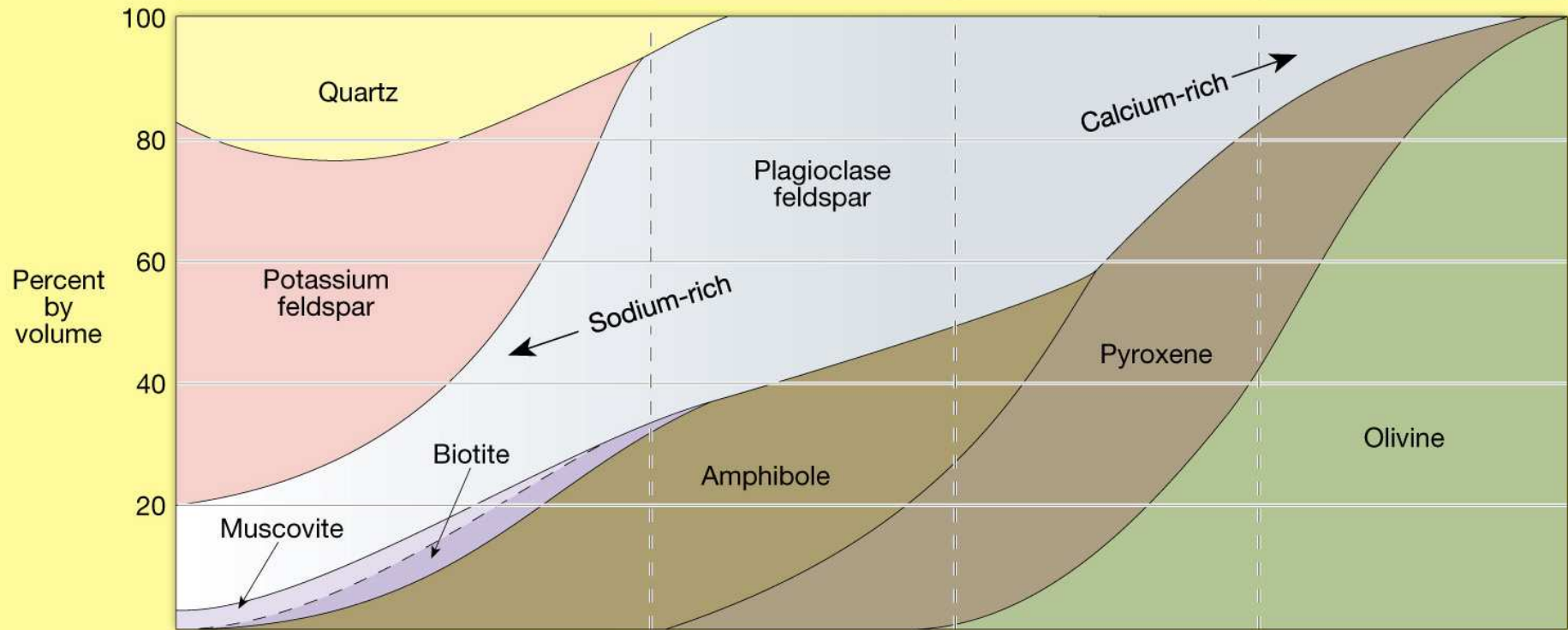


Fig. 20.18

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



World Tectonic Provinces

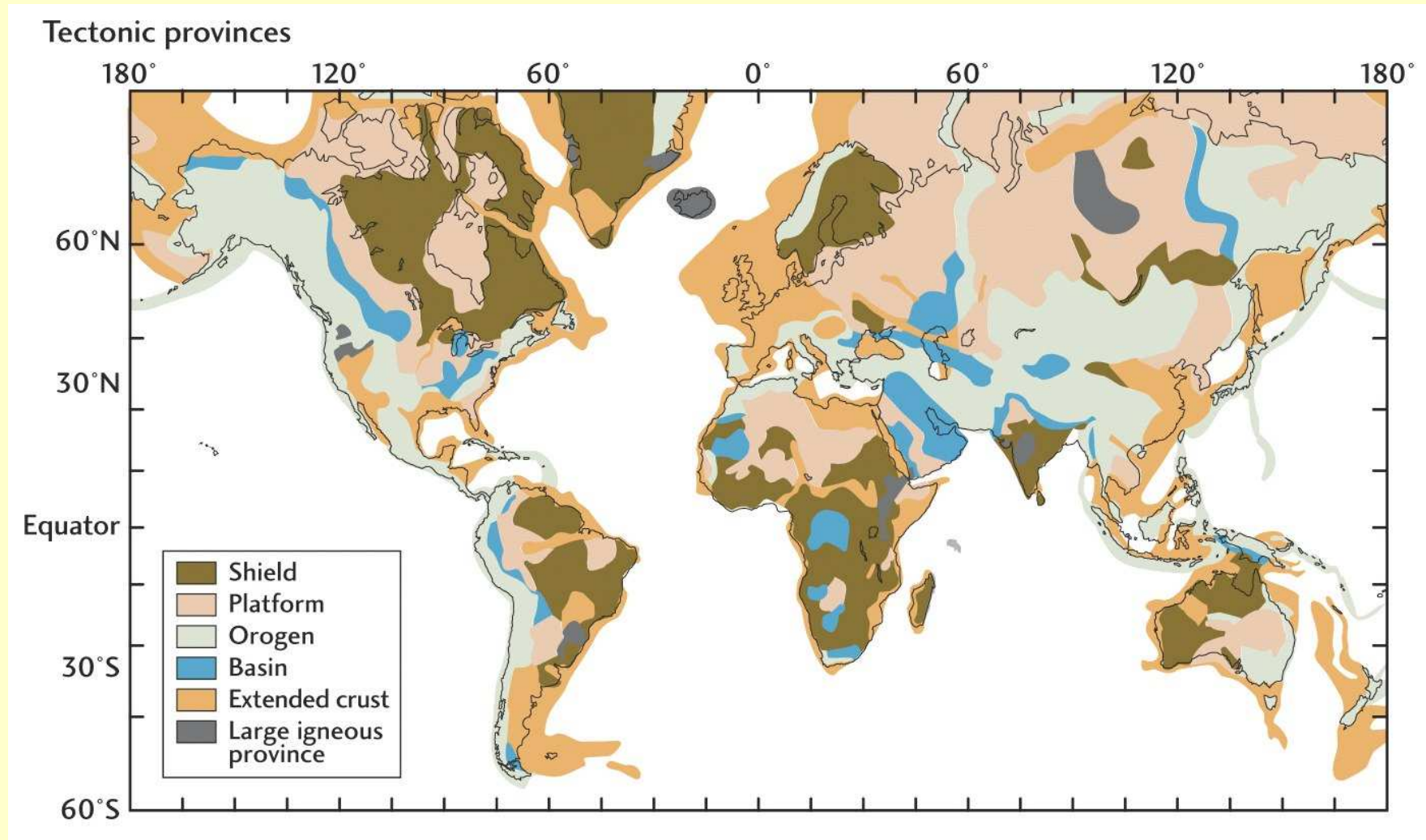


Fig. 20.8a

