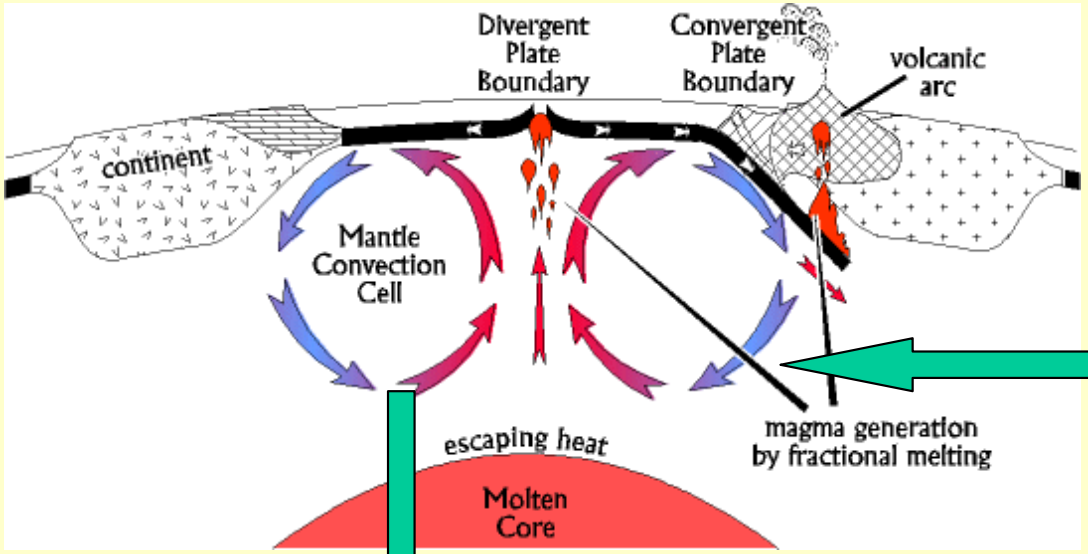
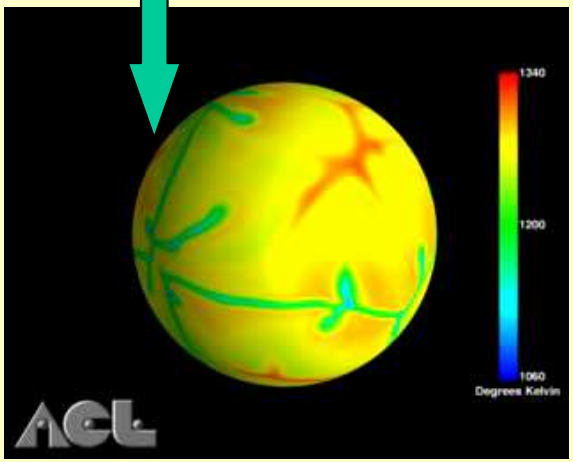
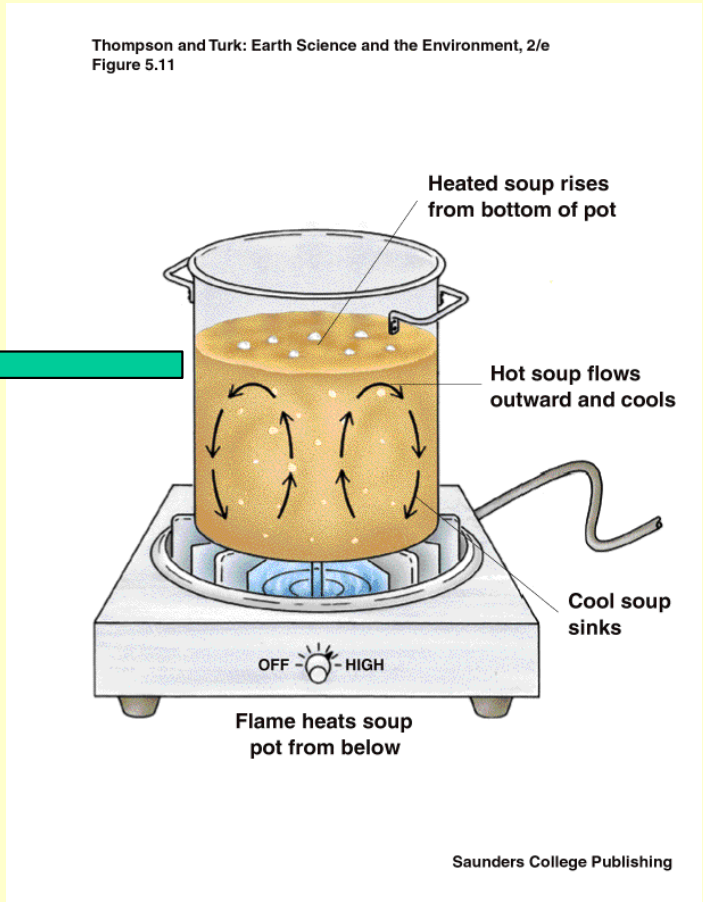
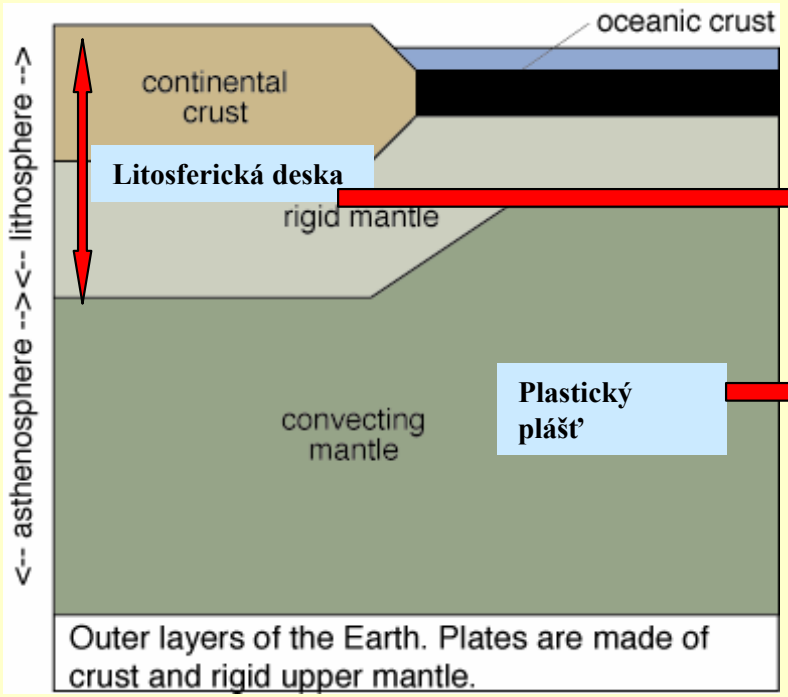
Geologie na konci 20. století přešla od fixistických statických interpretací k dynamickému pojetí vývoje Zemč. Dnes dominující paradigma geologie – tektonika litosferických desek - zdůrazňuje výrazné horizontální přesuny kontinentálních bloků. Za jejich hnací motor je považována tepelná konvekce v plášti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

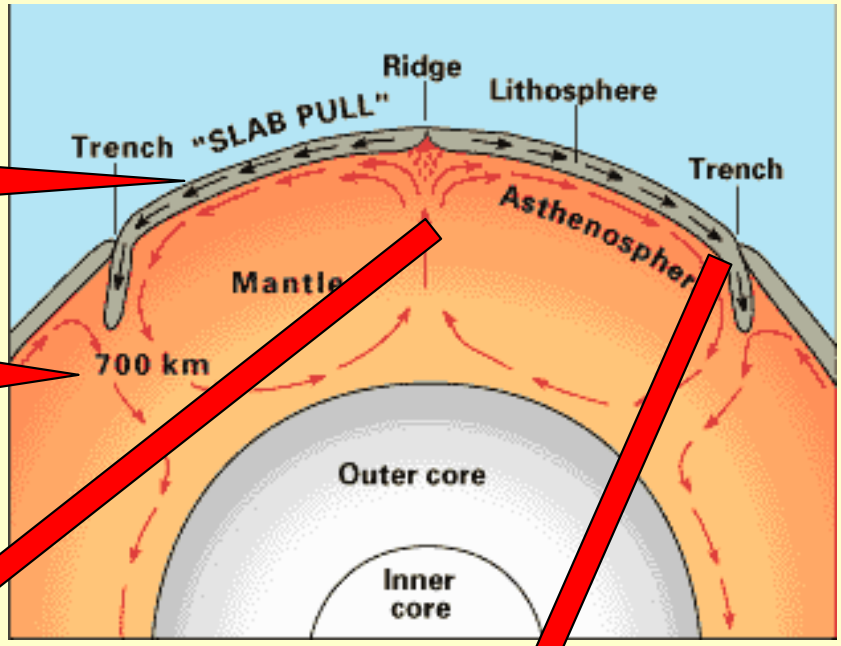






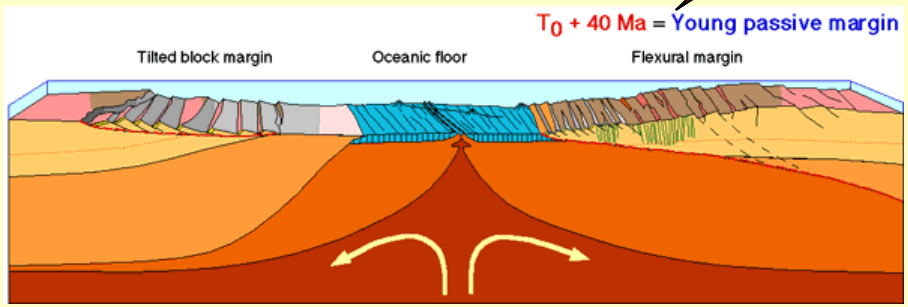
Teorie litosferických desek předpokládá, že konvekční tepelné proudy v plastické části zemského pláště vedou v místech vzestupných tepelných proudů ke vzniku divergentních rozhraní a v místech sestupných tepelných proudů ke vzniku konvergentních rozhraní litosferických desek

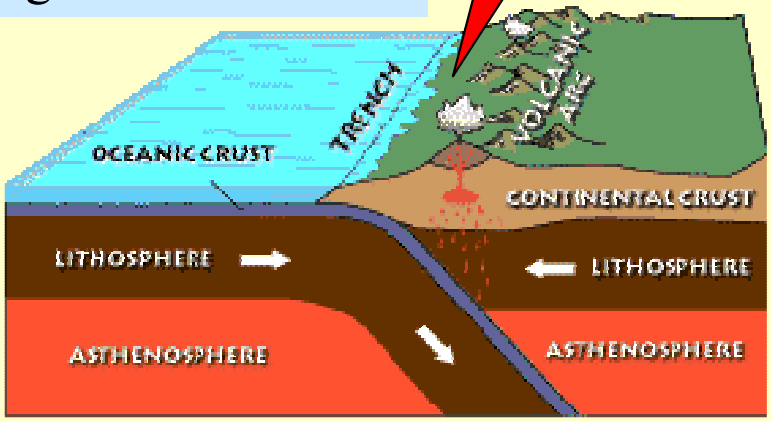




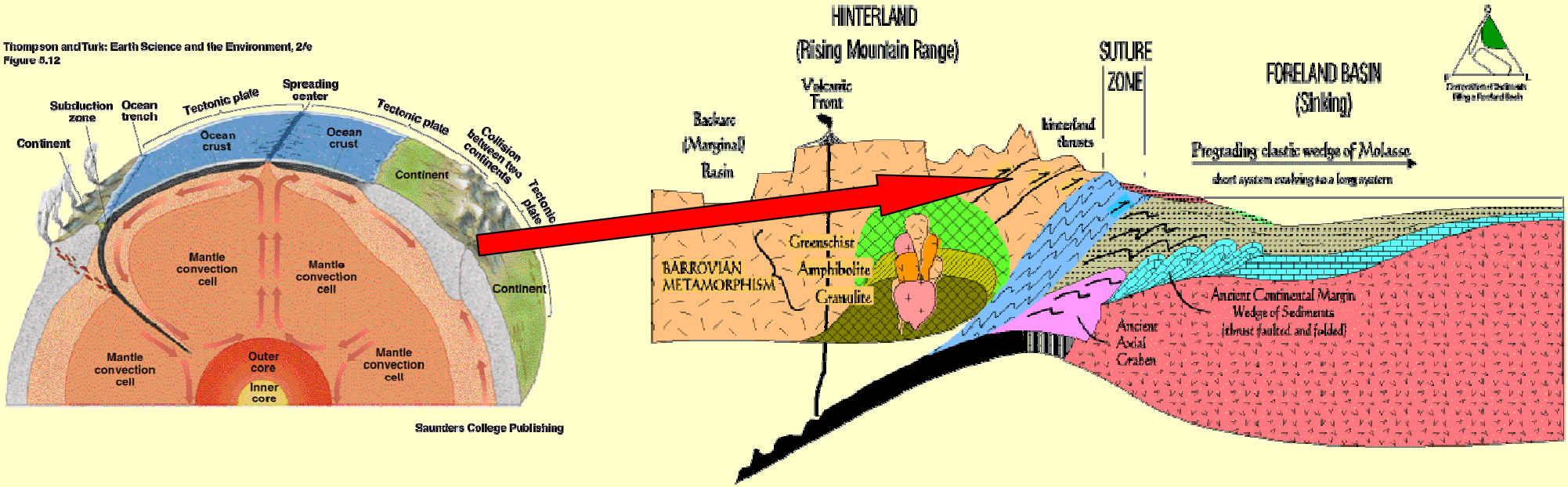
Konvergentní rozhraní

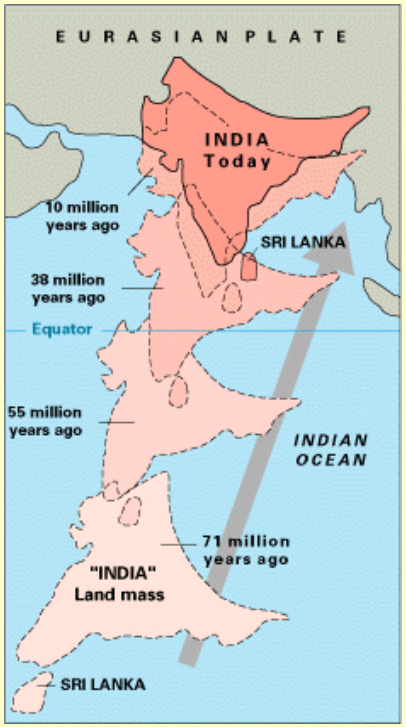
Divergentní rozhraní

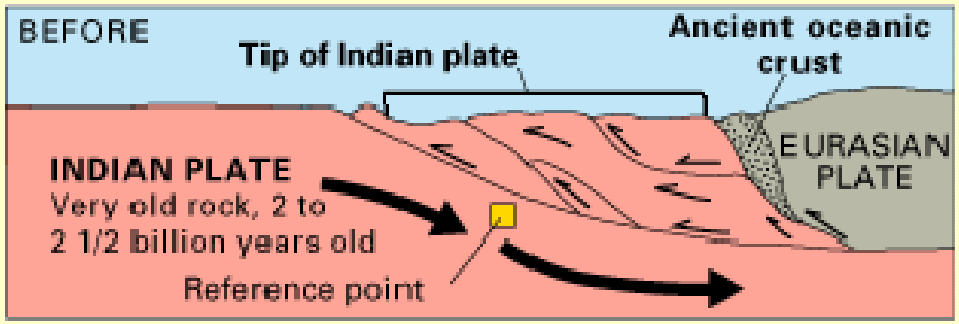


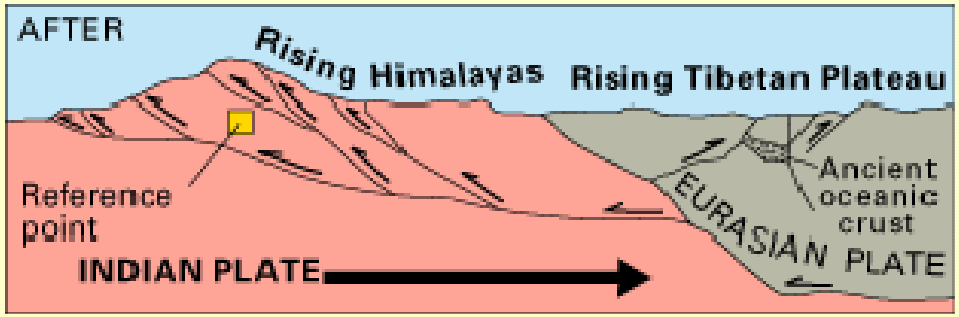


Konvergentní rozhraní představují místa vrásnění, vulkanické činnosti, vzniku pohoří a kolize kontinentů









Hlavní etapy vrásnění v prvohorách - čtvrtohorách

Časová škála

245 Ma

Prvohory

mladší: karbon, perm

starší: kambrium, ordovik, silur, devon

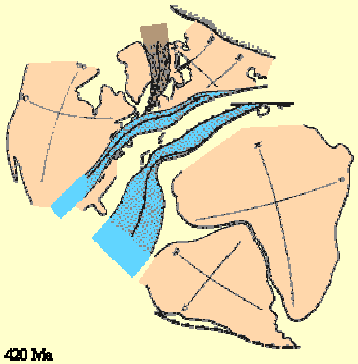
545 Ma

Prekambrium

Vrásnění

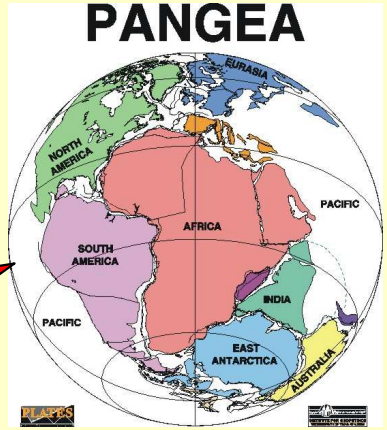
Variské vrásnění

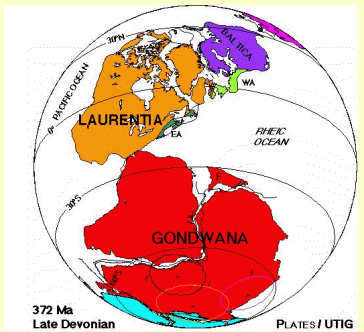
Kaledonské vrásnění



Vznik Pangei

Paleogeografie





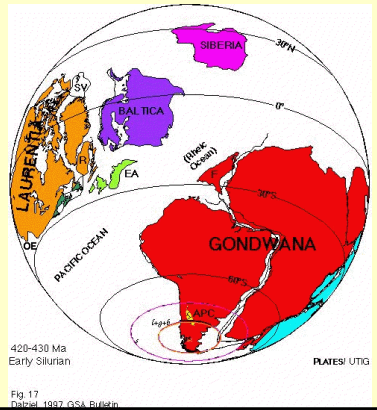


Fig. 17
Daniel, 1997, GSA Bulletin

Časová škála

Čtvrtohory

1,8 Ma

Třetihory

- Neogén
- Paleogén

65 Ma

Druhohory

- Křída
- Jura
- Trias

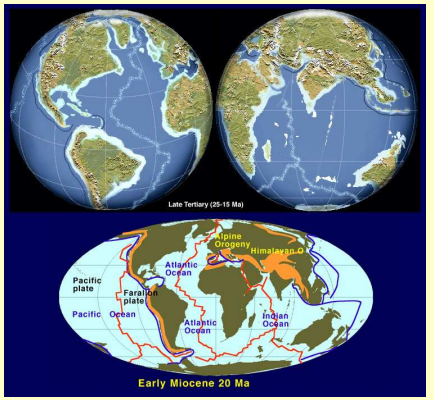
245 Ma

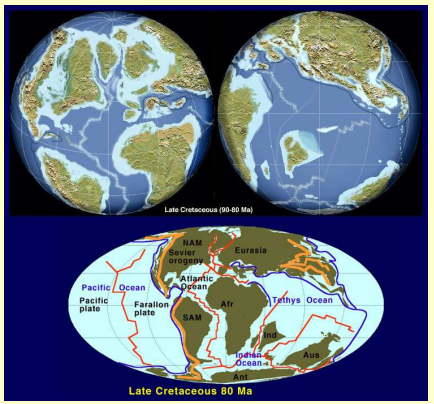
Vrásnění

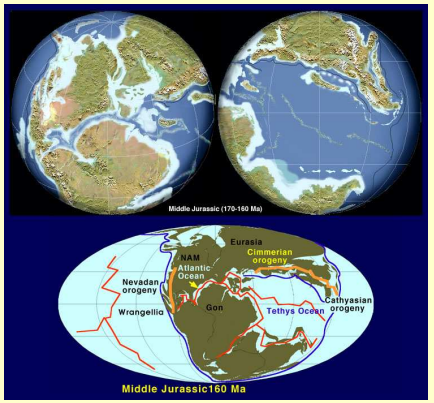
Alpinské vrásnění

Kimerské vrásnění

Paleogeografie

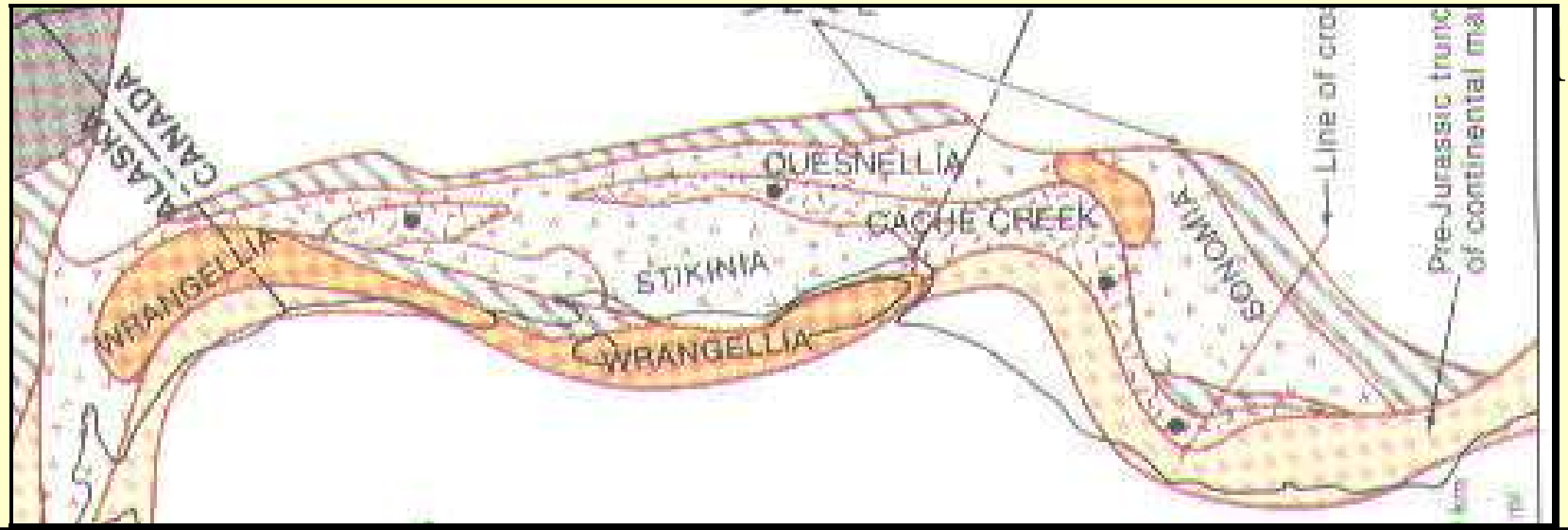






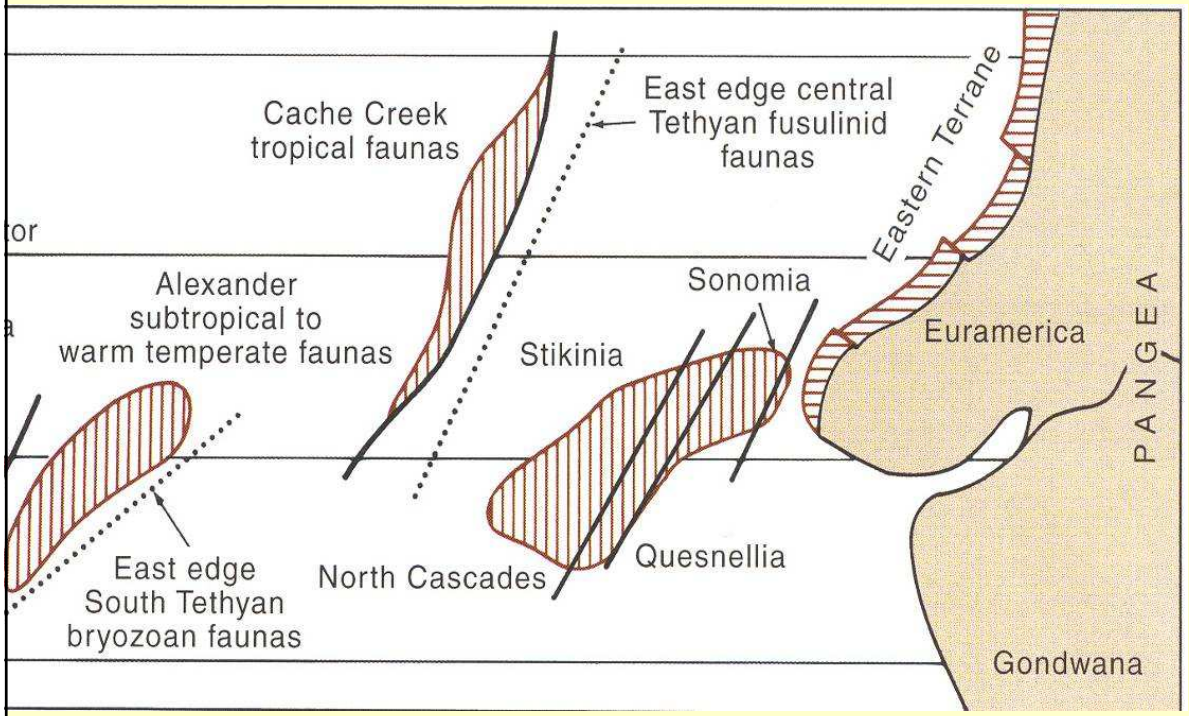
Terránní akrece

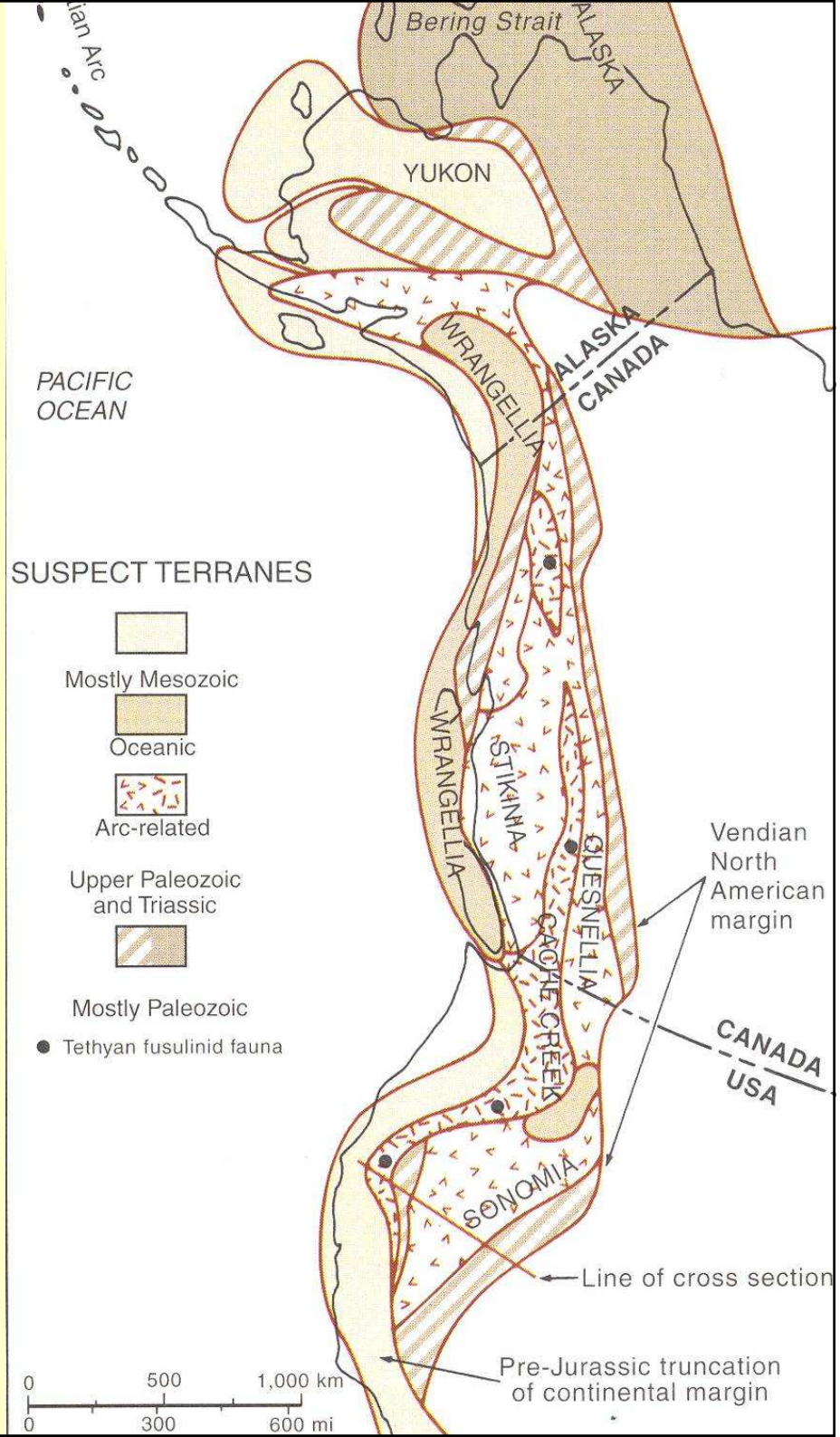
- Cordillera an collage of microplates and arcs
  - accreted during the Paleozoic and Mesozoic
  - terrains have different rock types and fossil assemblages that cannot be correlated
  - suspect terrains--fault-bounded regions that s be correlated

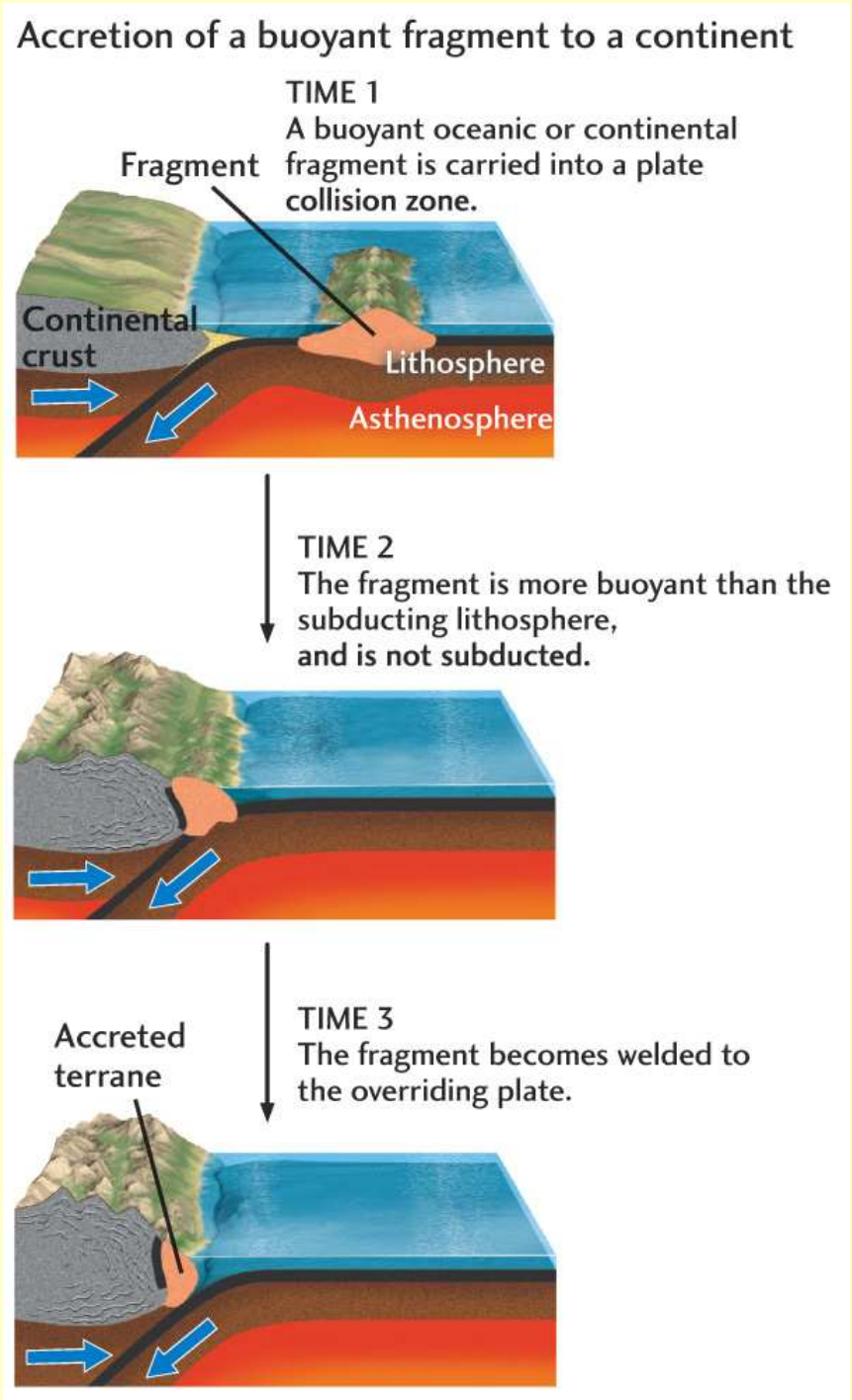


The Canadian Cordillera west of the Rockies is largely composed of displaced terranes, as are the easternmost sections of Siberia.

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



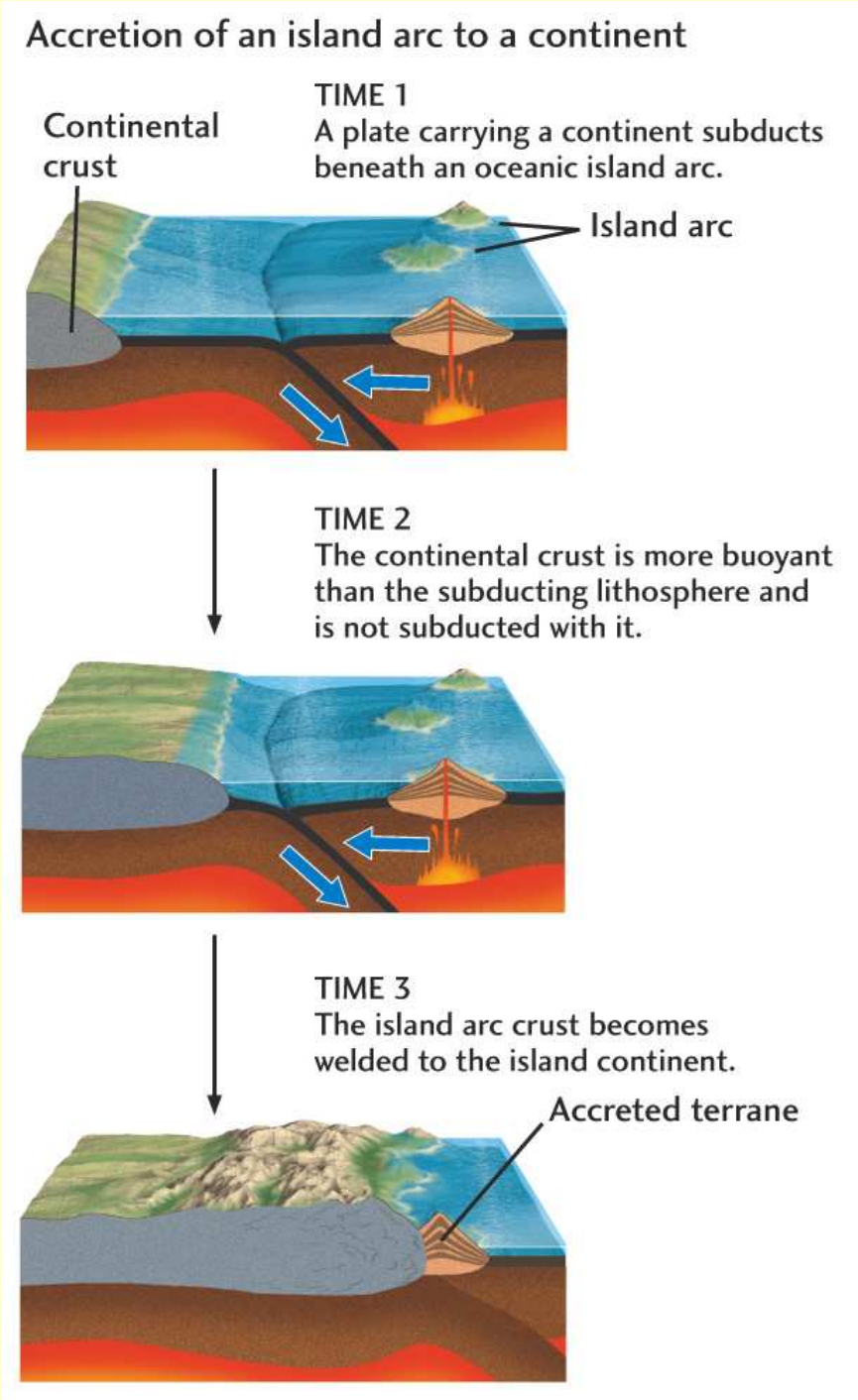




How Continents Grow:

Accretion of continental fragments

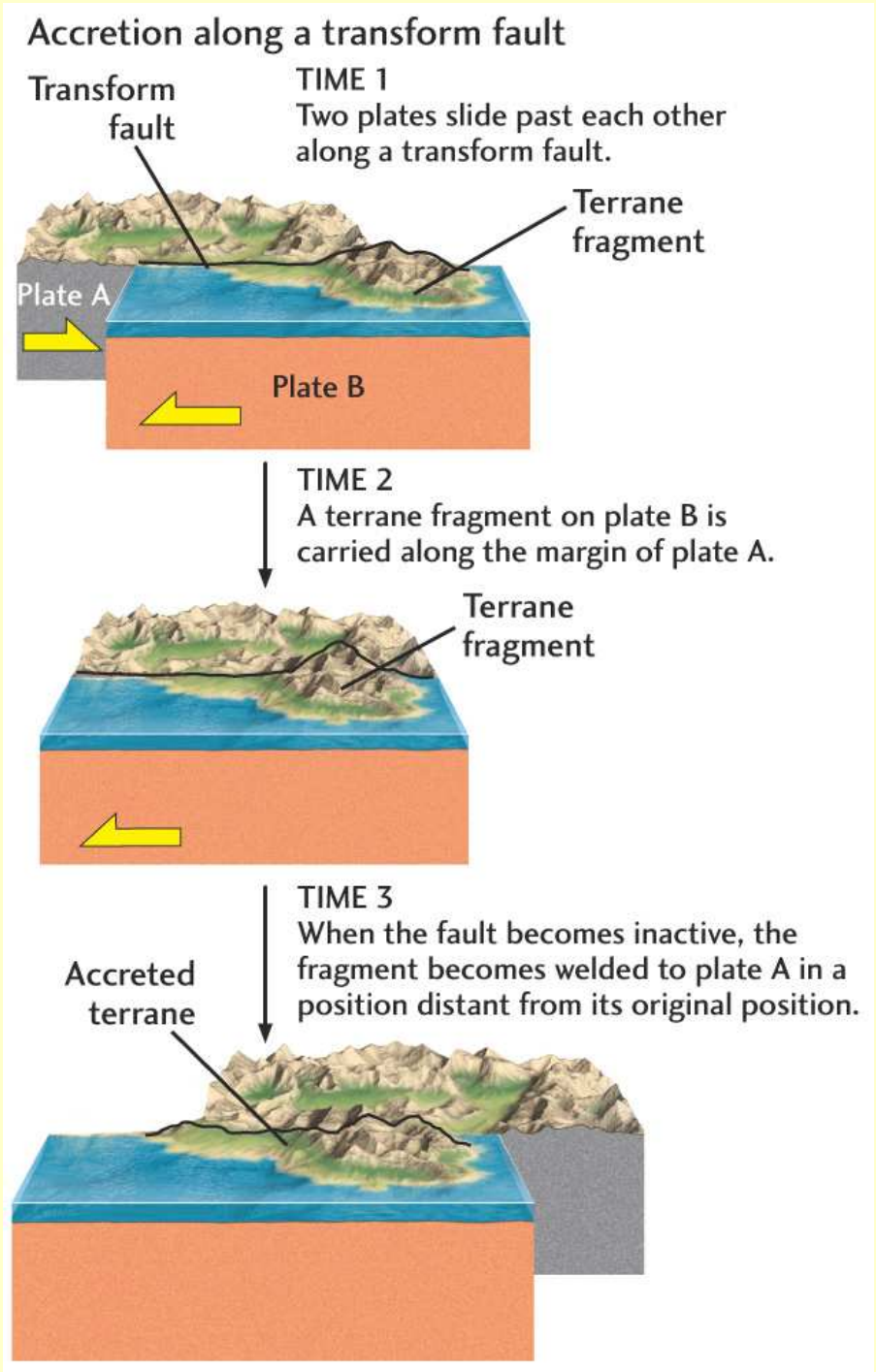
Fig. 20.12a



How Continents Grow:

Accretion of island arcs

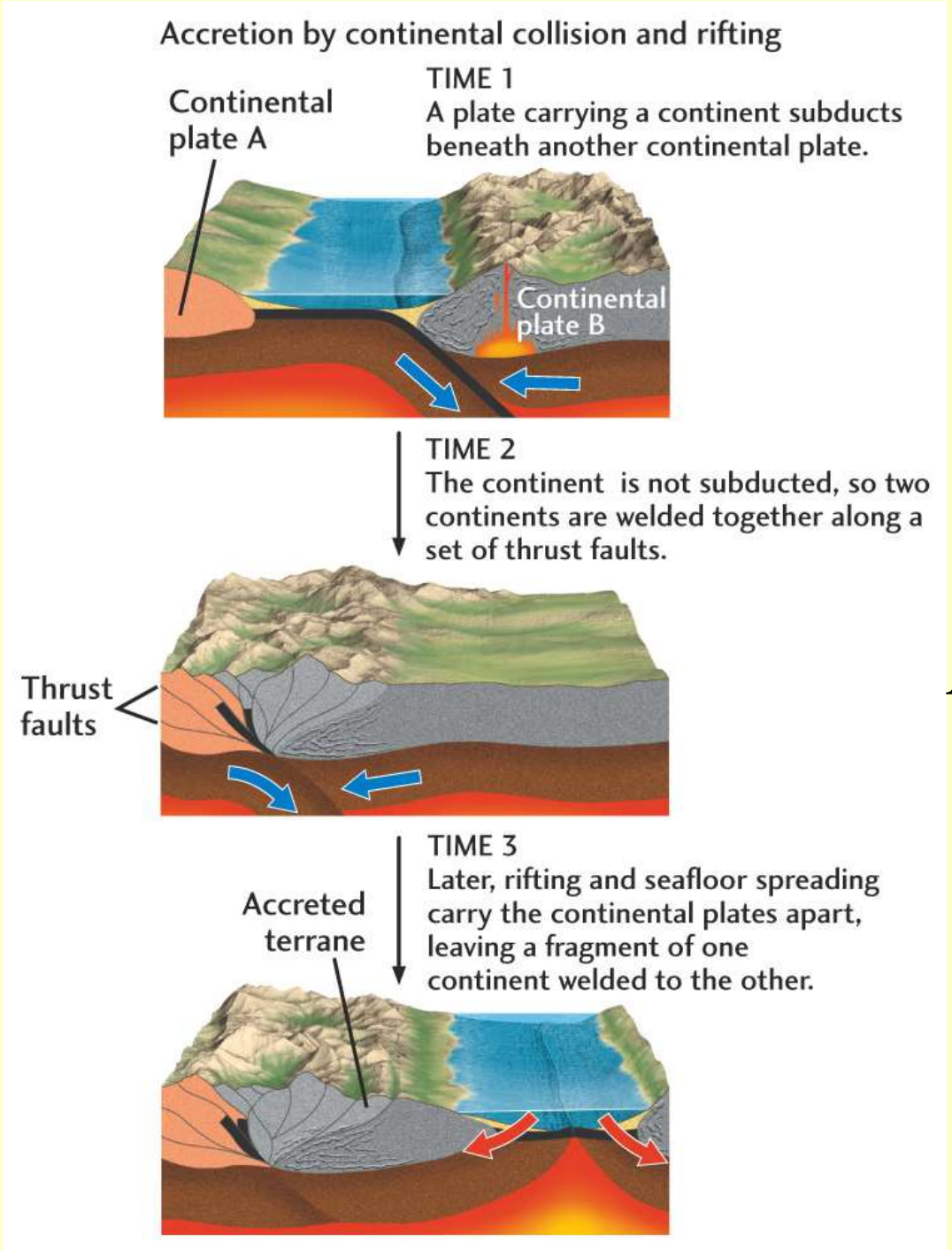
Fig. 20.12b



How Continents Grow:

Accretion along transform faults

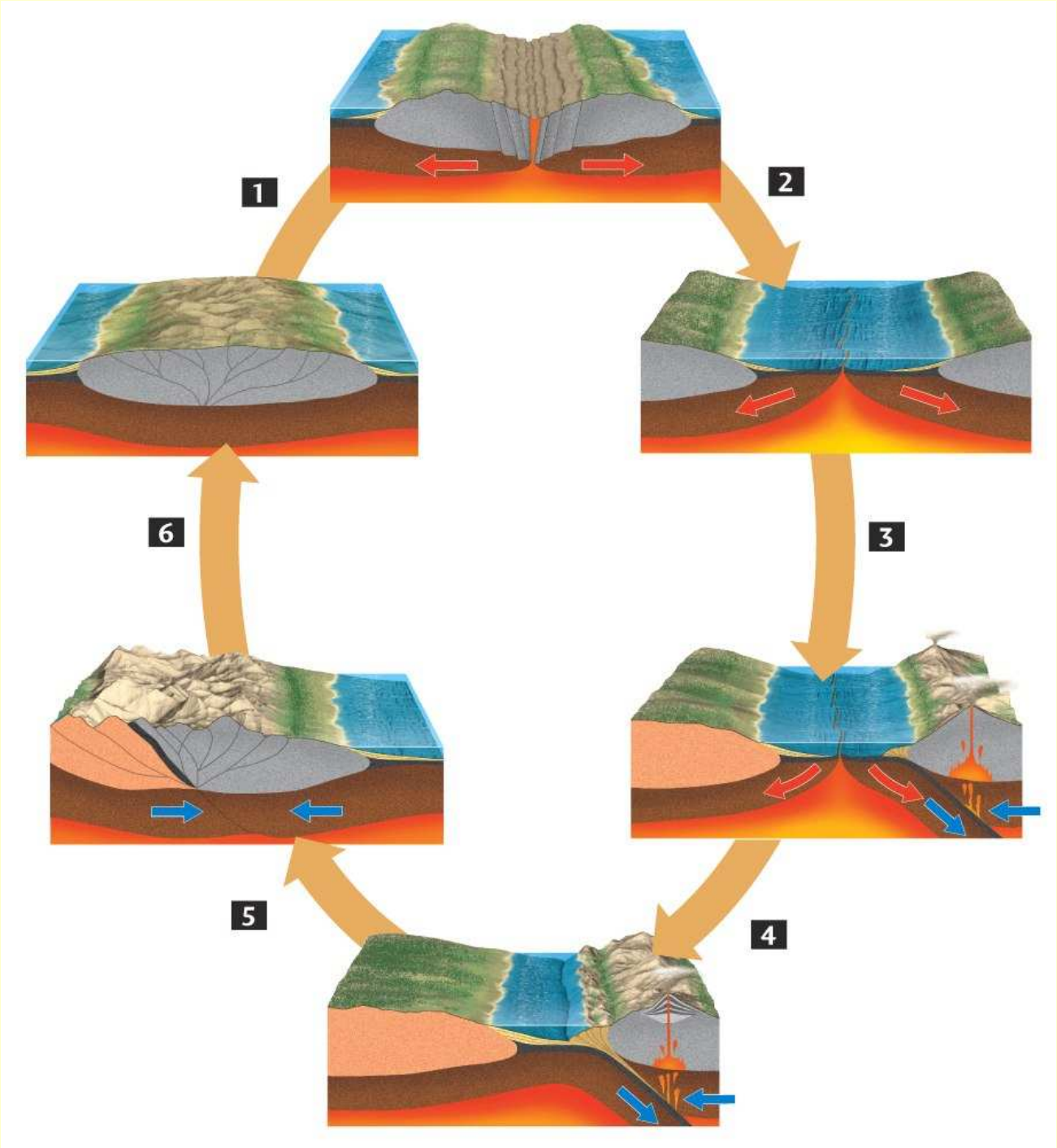
Fig. 20.12c



How Continents Grow:

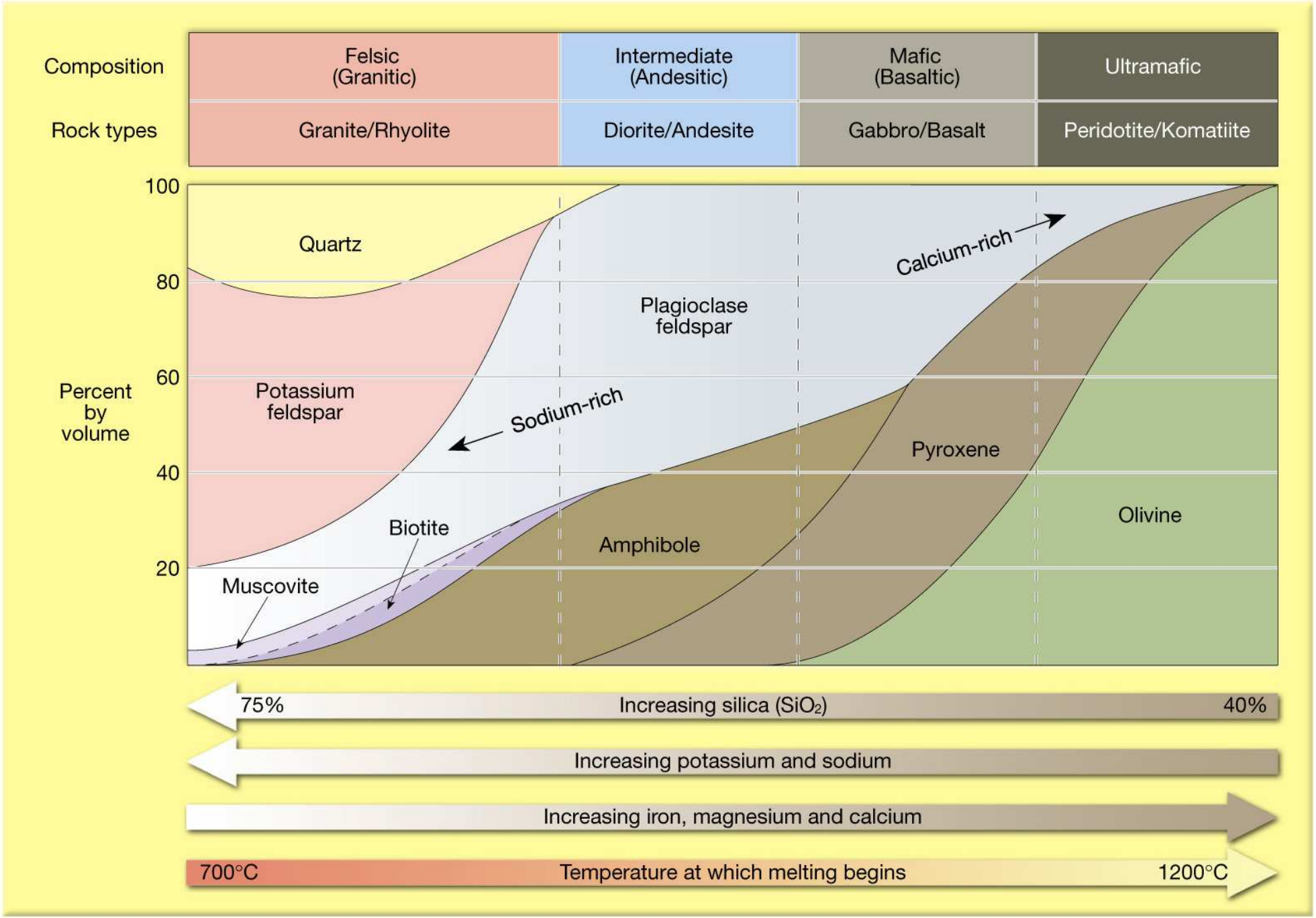
Accretion by continental collision/ rifting

Fig. 20.12d



The Wilson Cycle

Fig. 20.18



World Tectonic Provinces

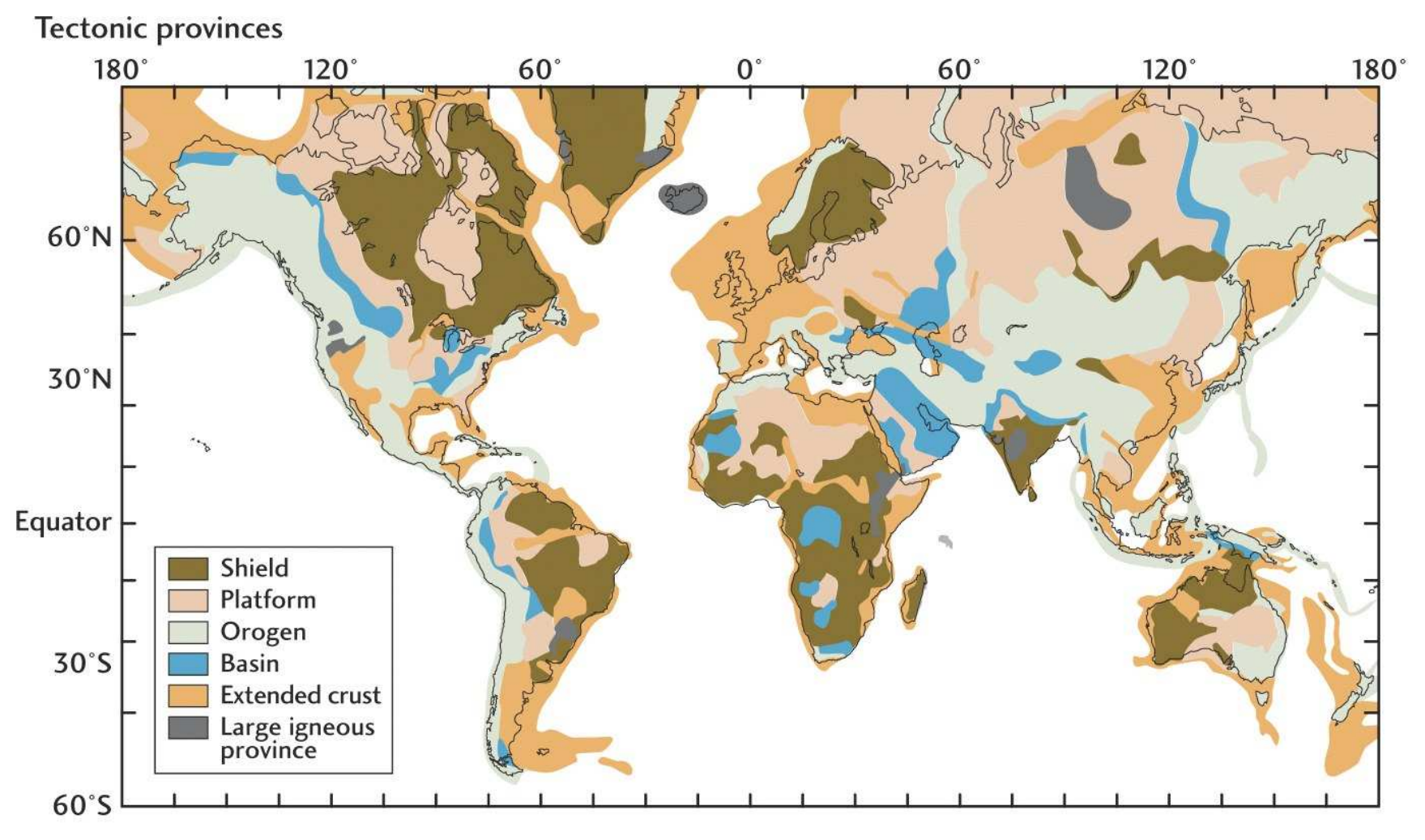


Fig. 20.8a