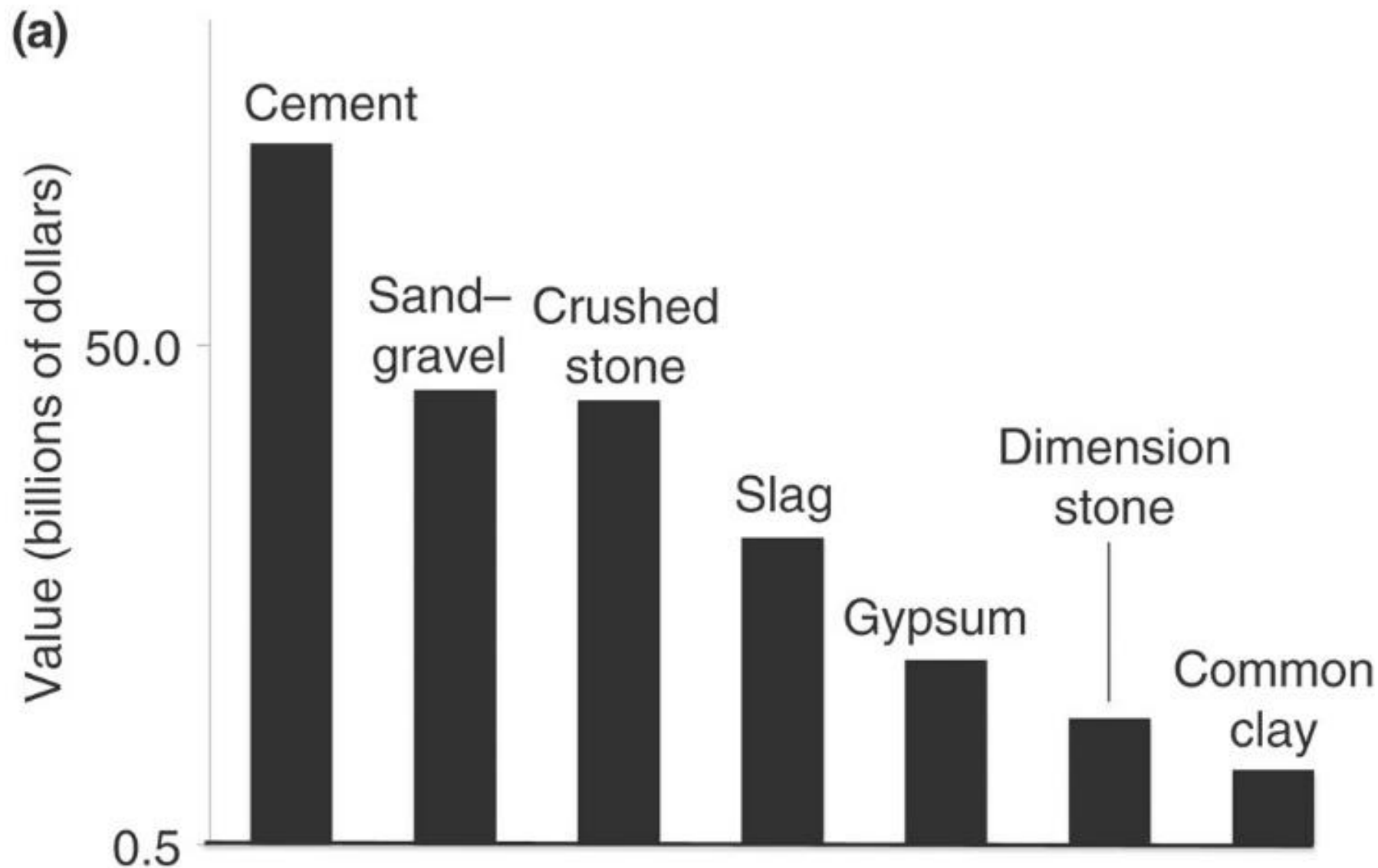


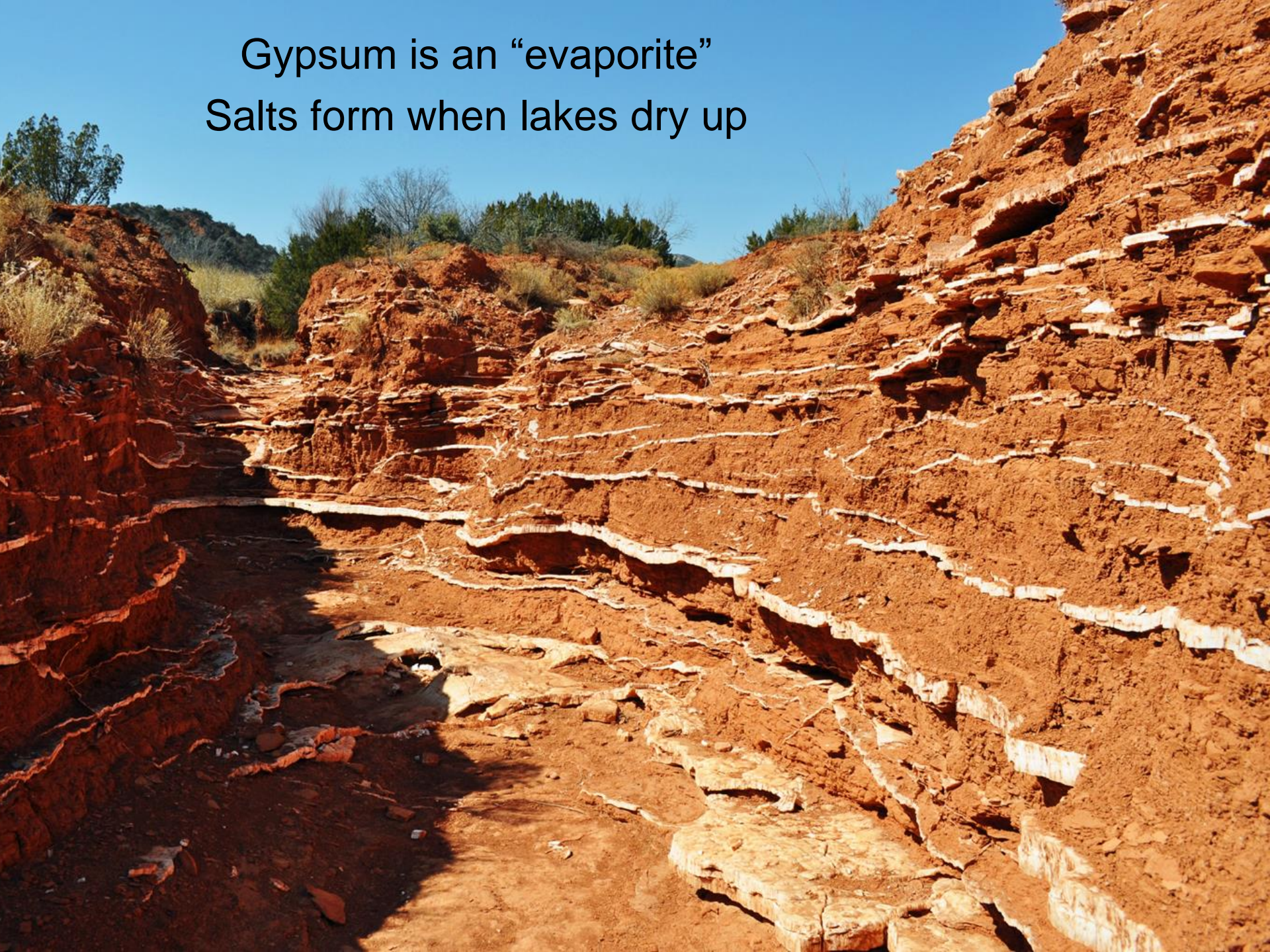
Where do Minerals concentrate *within* the crust? (Ch.2)

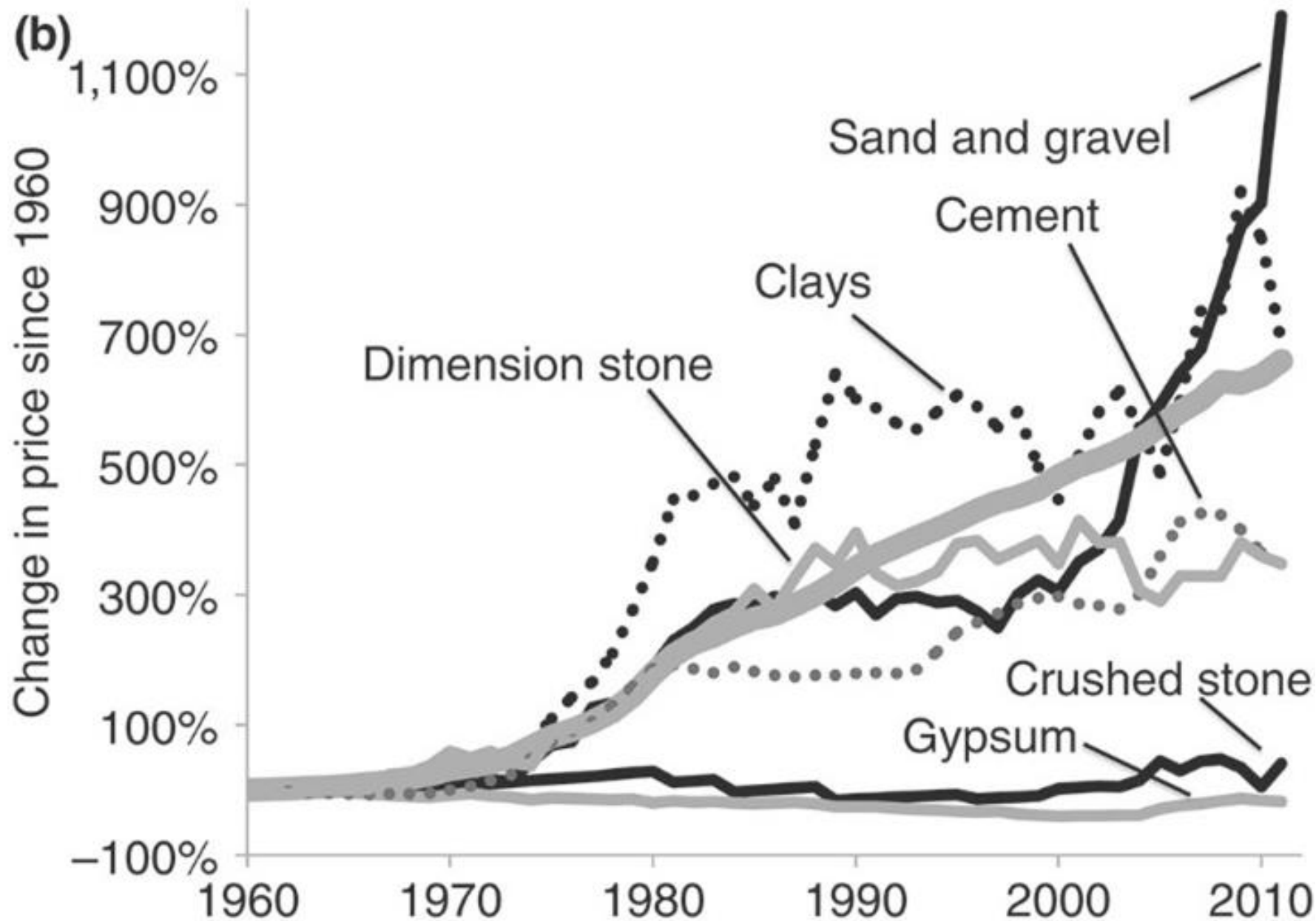
1. Soil (through weathering)
2. Groundwater
3. Magmatic / Metamorphic processes

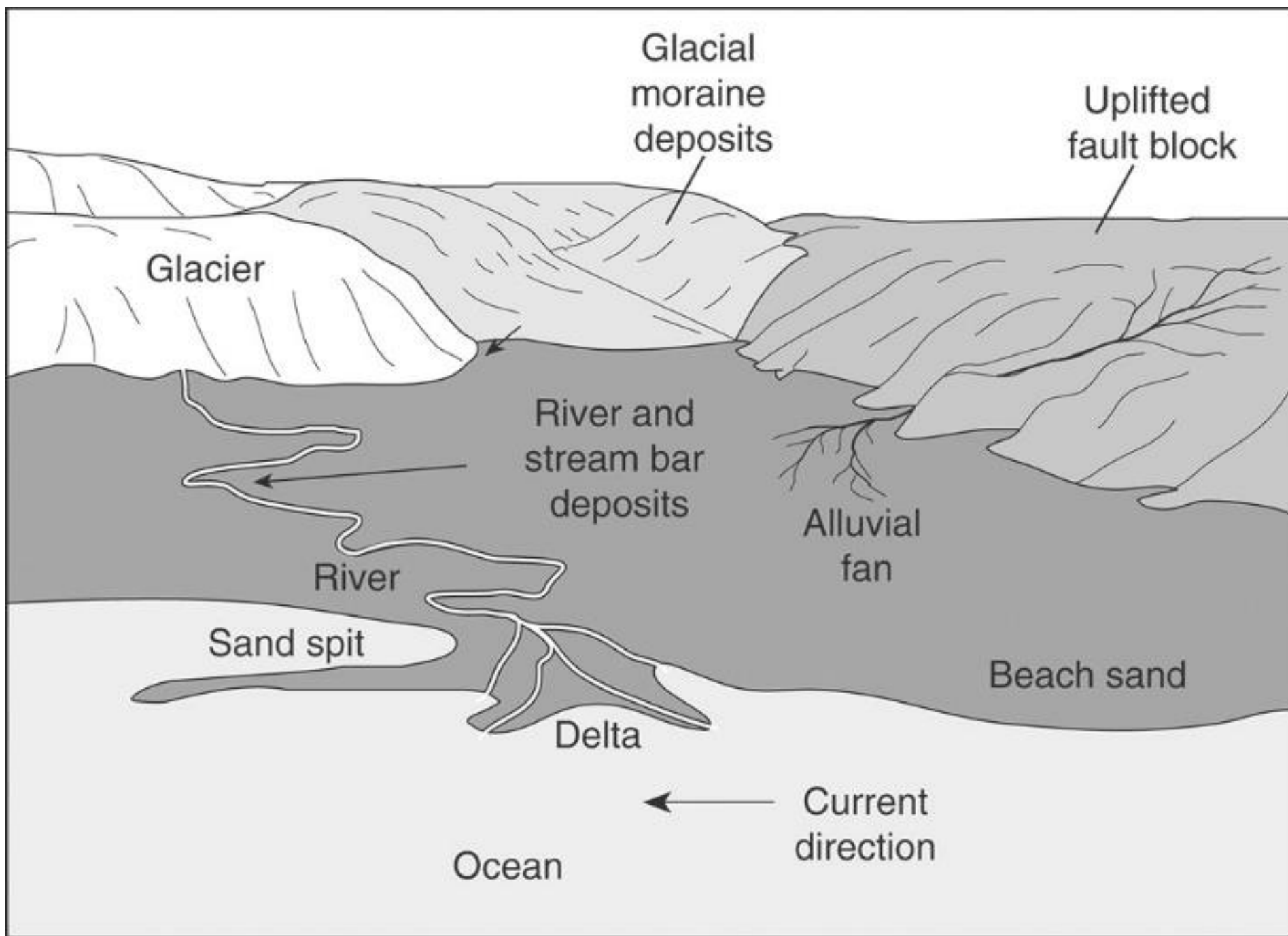
Industrial / Construction Minerals



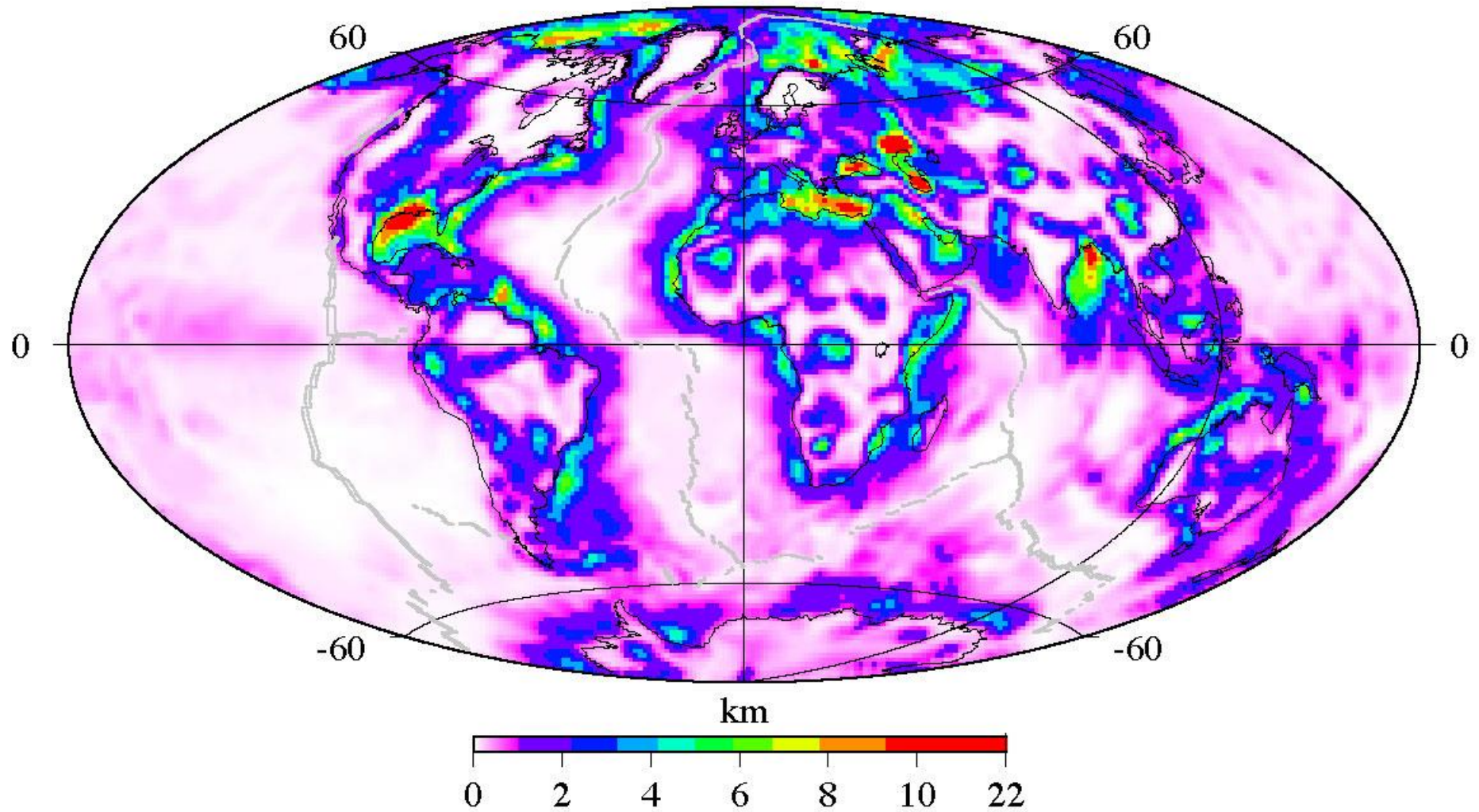
Gypsum is an “evaporite”
Salts form when lakes dry up





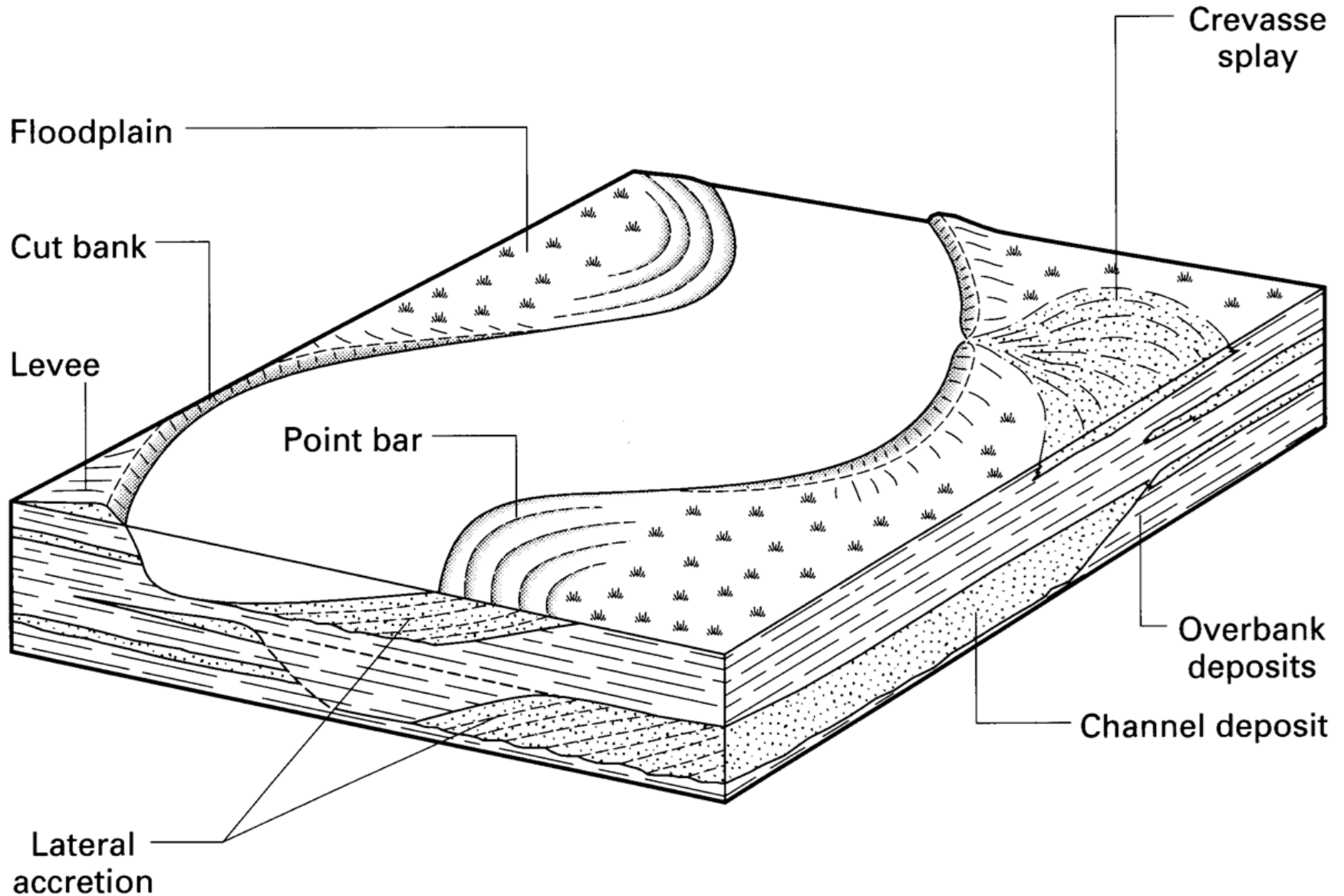


Global sediment thickness



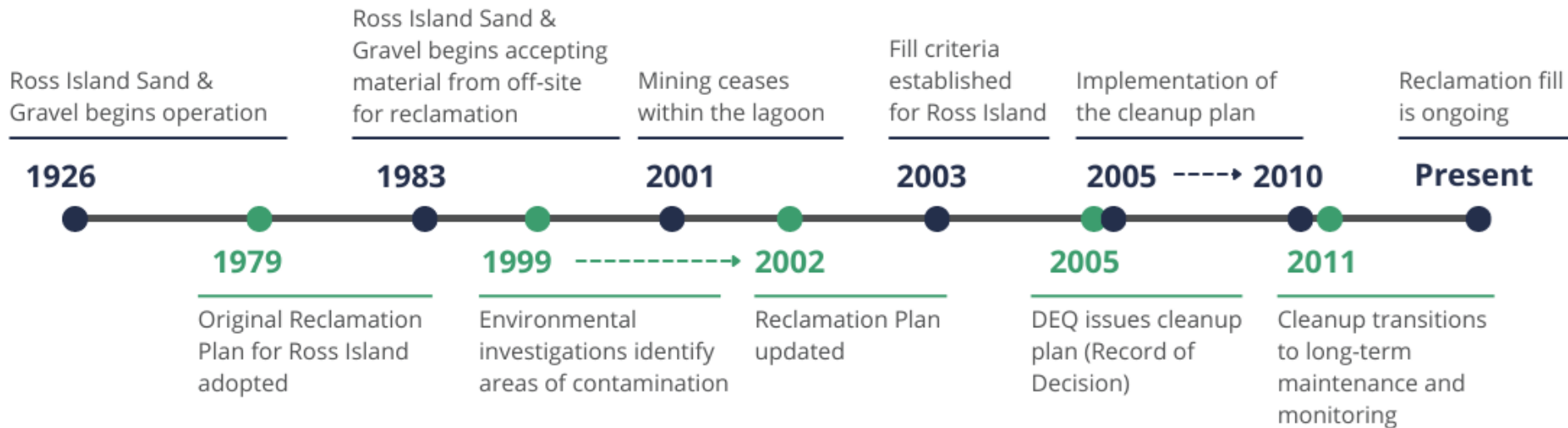
(Laske and Masters, 1997)

Boggs, Chapter 8.2 – Fluvial Depositional Environments





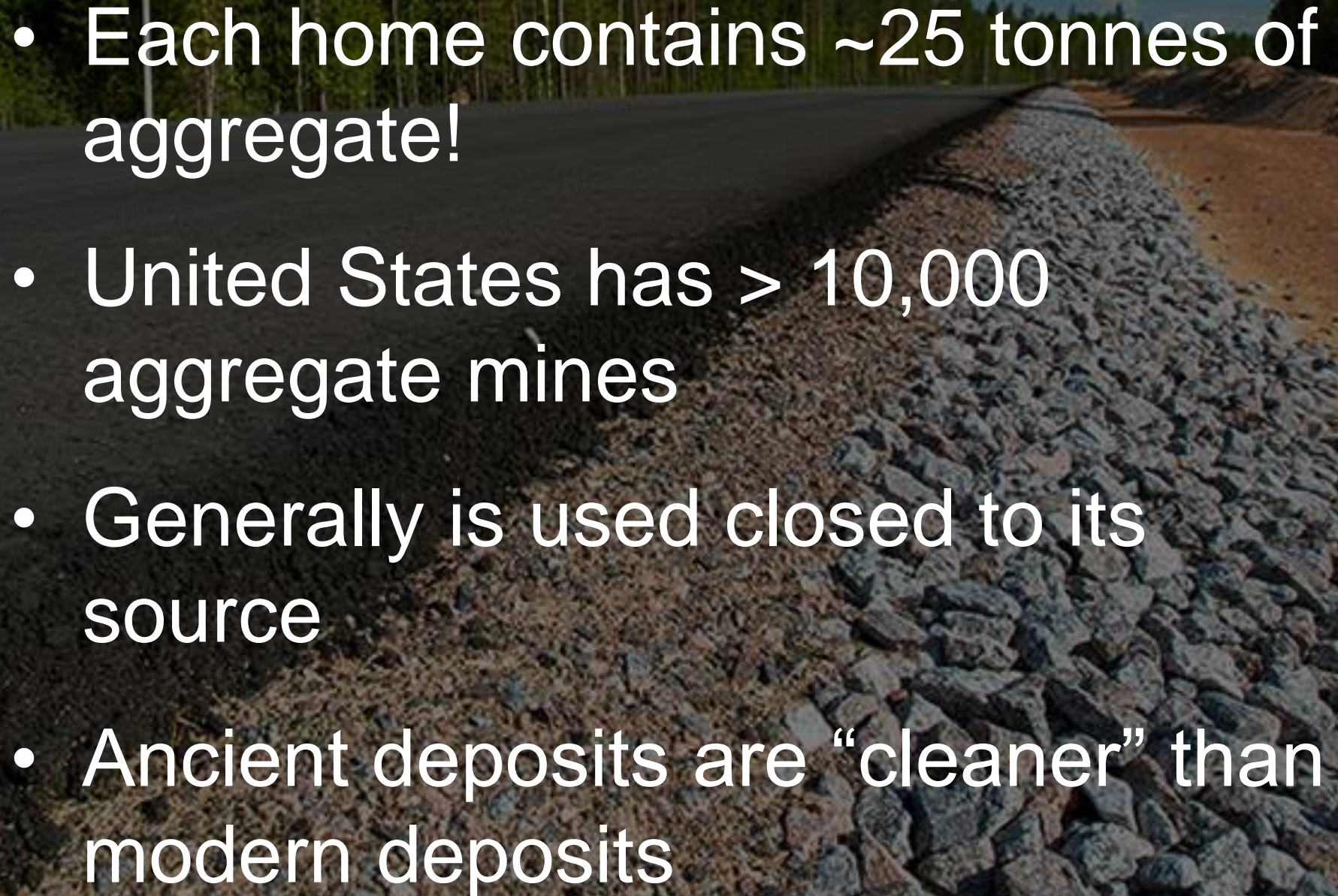
Ross Island Sand & Gravel Company Timeline





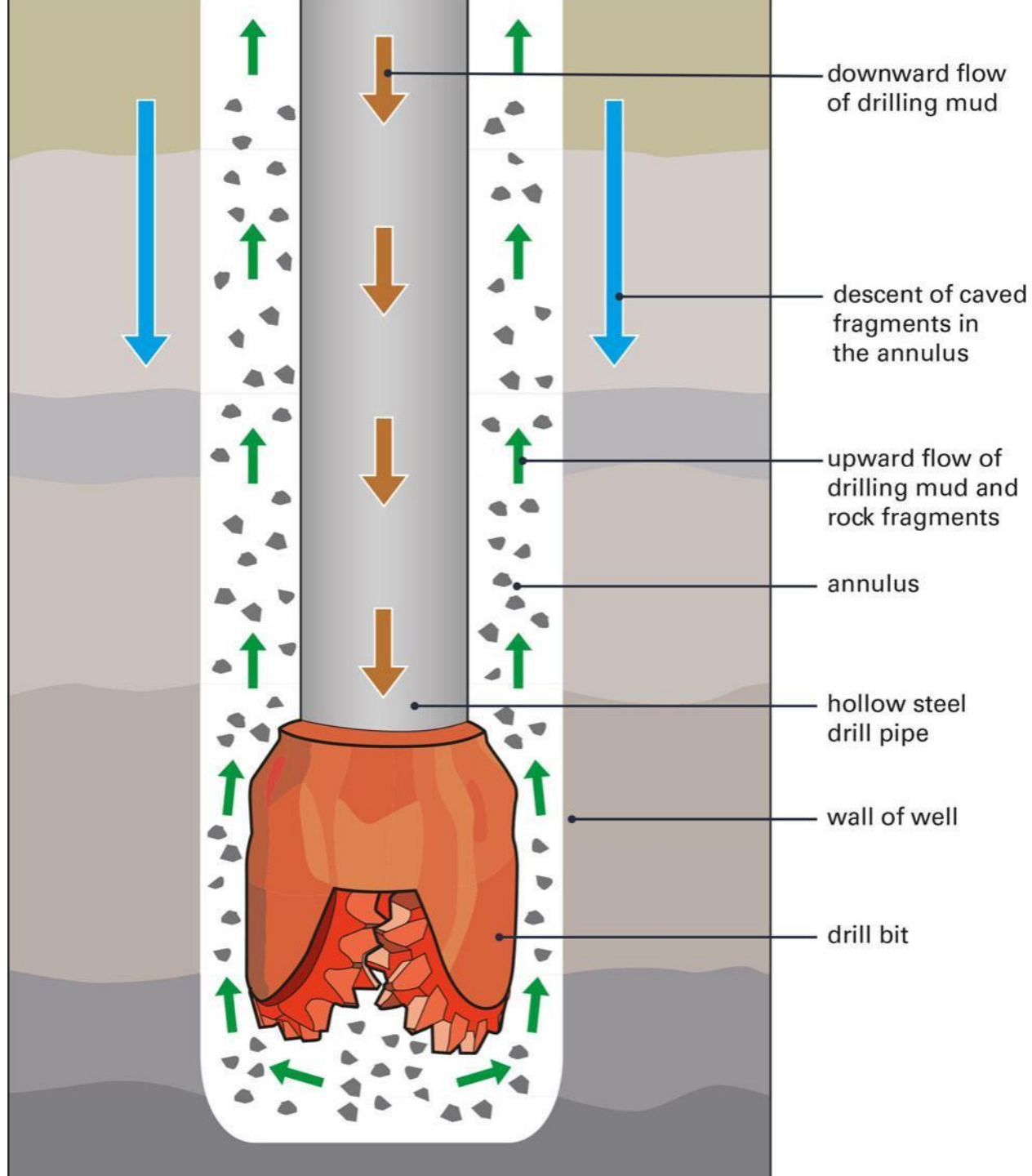




- 
- Each home contains ~25 tonnes of aggregate!
 - United States has > 10,000 aggregate mines
 - Generally is used closed to its source
 - Ancient deposits are “cleaner” than modern deposits

Glensanda Quarry, Scotland





Lost Circulation

⚠ Excessive hook load. Loss of returns.

🔍 Fractured or highly permeable formations. Induced fractures.

💡 Design pump rates to minimize losses. Include LCM material in spacer/cement.



Shale gas extraction

