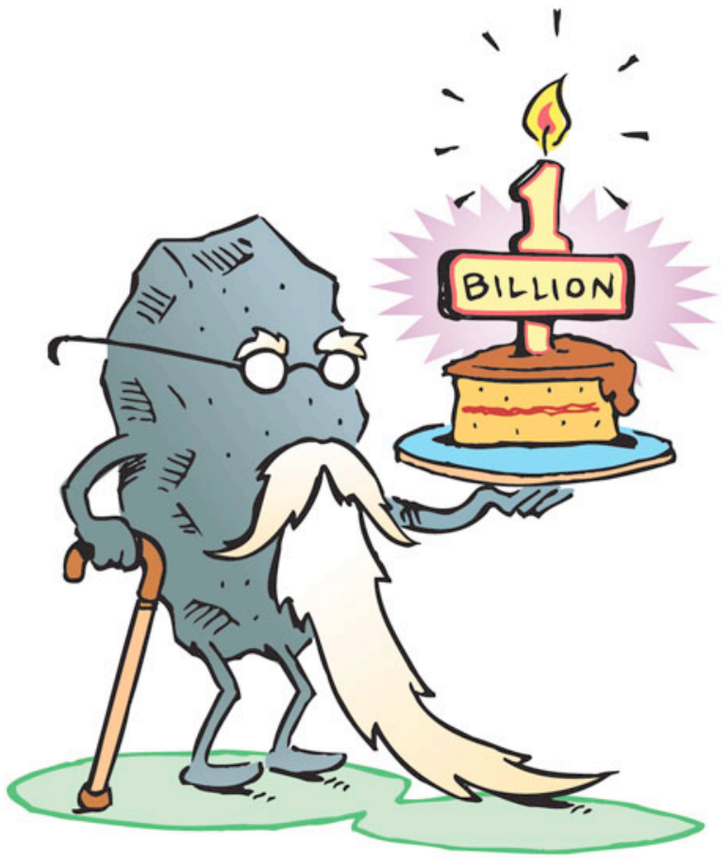
What can rocks tell us about Earth's history?



(Besides that it's old)

Sedimentary Rocks are laid down as sediment accumulates

- Things to look at:

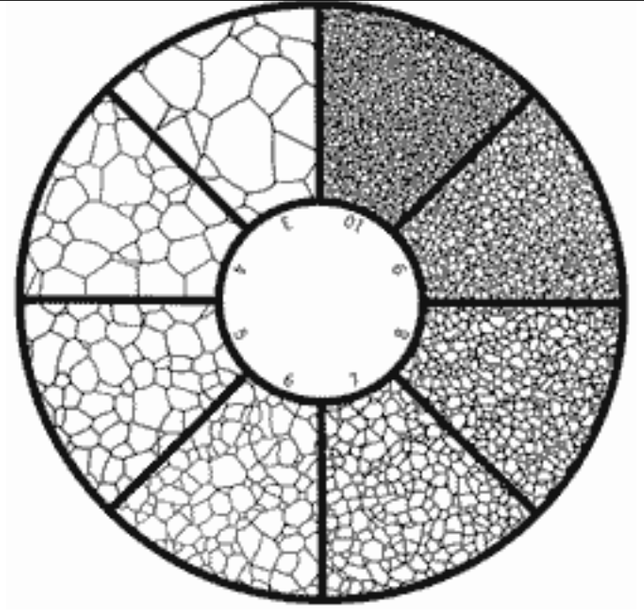
- Size of the grains

- Are they angular (sharp-edged) or rounded

- Are they sorted well or poorly

    - Do all the grains have the same size or different sizes?

Grain Size



- The greater the grain size, the greater the energy was in the depositional environment.
    - EX) At the top of a mountain stream, we have large boulders making up the stream bed. HIGH ENERGY
    - At the end of a river, in a delta, the water slows down and deposits tiny sediments (LOWER ENEGY)
- Small grain size= low energy environment (deep water, calm area)
- Larger grain size= higher energy environment (waves, wind, ext)

Conglomerate rock and Sandstone

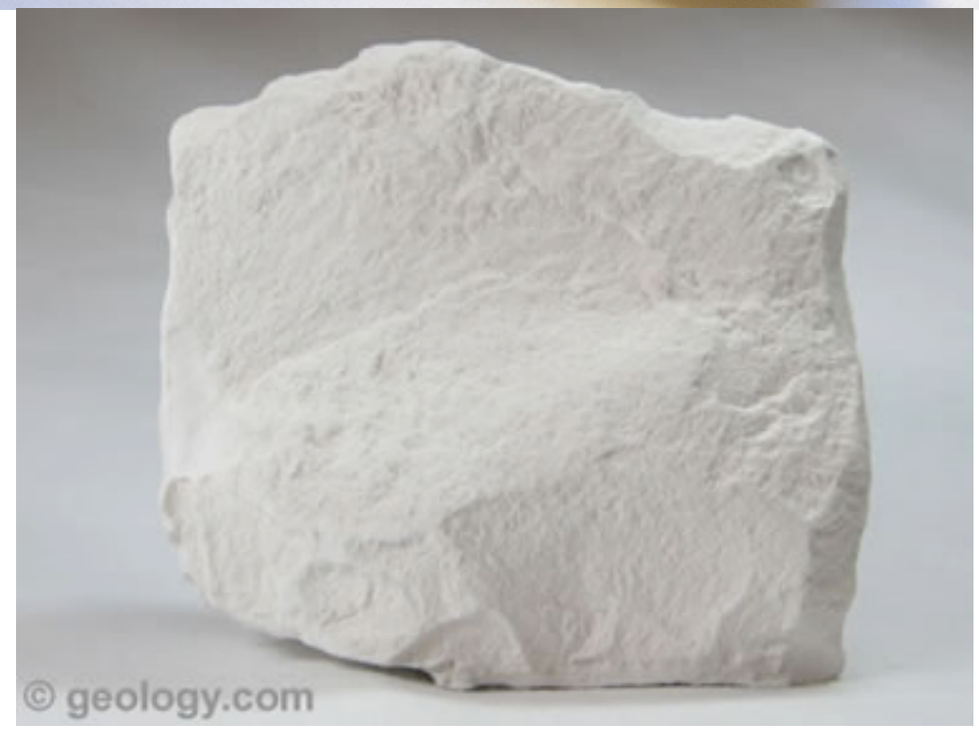
- Large grain size

- Deposited by glaciers, fast streams, waves, et cetera.

Shale, Limestone

- Have very small (microscopic) grain size

- Deposited in low-energy environments, mainly deep water with very little current.



Rounding

- Rocks with more rounded edges have undergone a lot of abrasion, and may have been in watery environments, or possibly a desert environment

- Angular rocks are often found in dry, windless areas

Sorting

- If the rocks grain sizes are all nearly equal, they are well-sorted.

- wind and water often create well-sorted rock

- If grain sizes are unequal, it’s poorly-sorted

- Strong forces create poorly sorted rocks (like glaciers)

Sorting

Special structures:

- Mudcracks- drying of mud near a shallow, watery environment

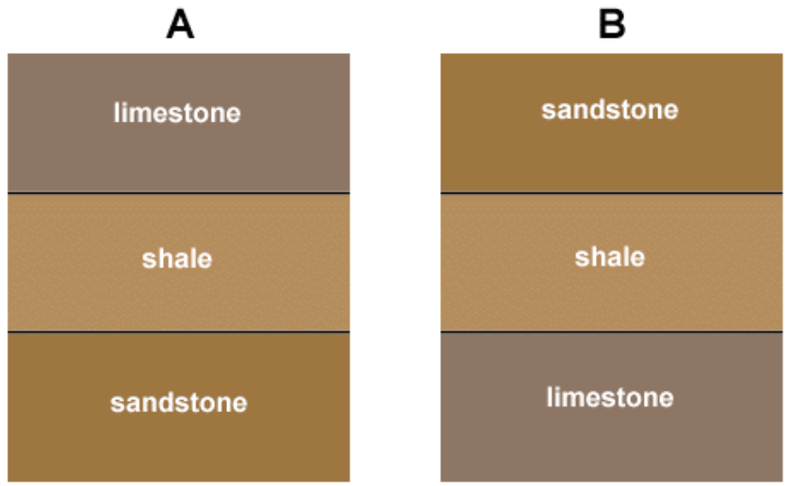
- Ripple Marks- formed by currents or waves in shallow water with low-energy

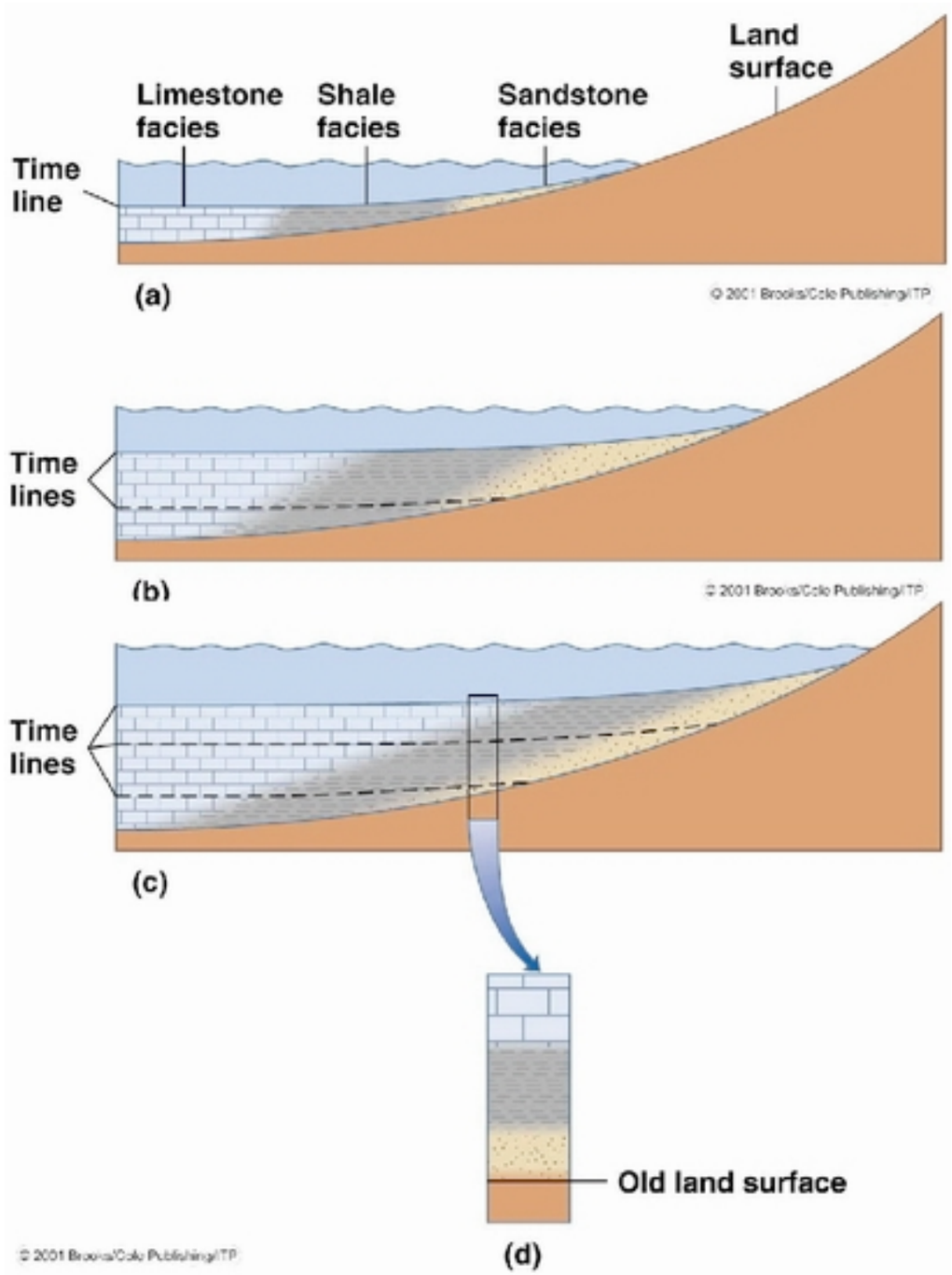
- Cross-bedding- deposition on a windless side of a sand dune

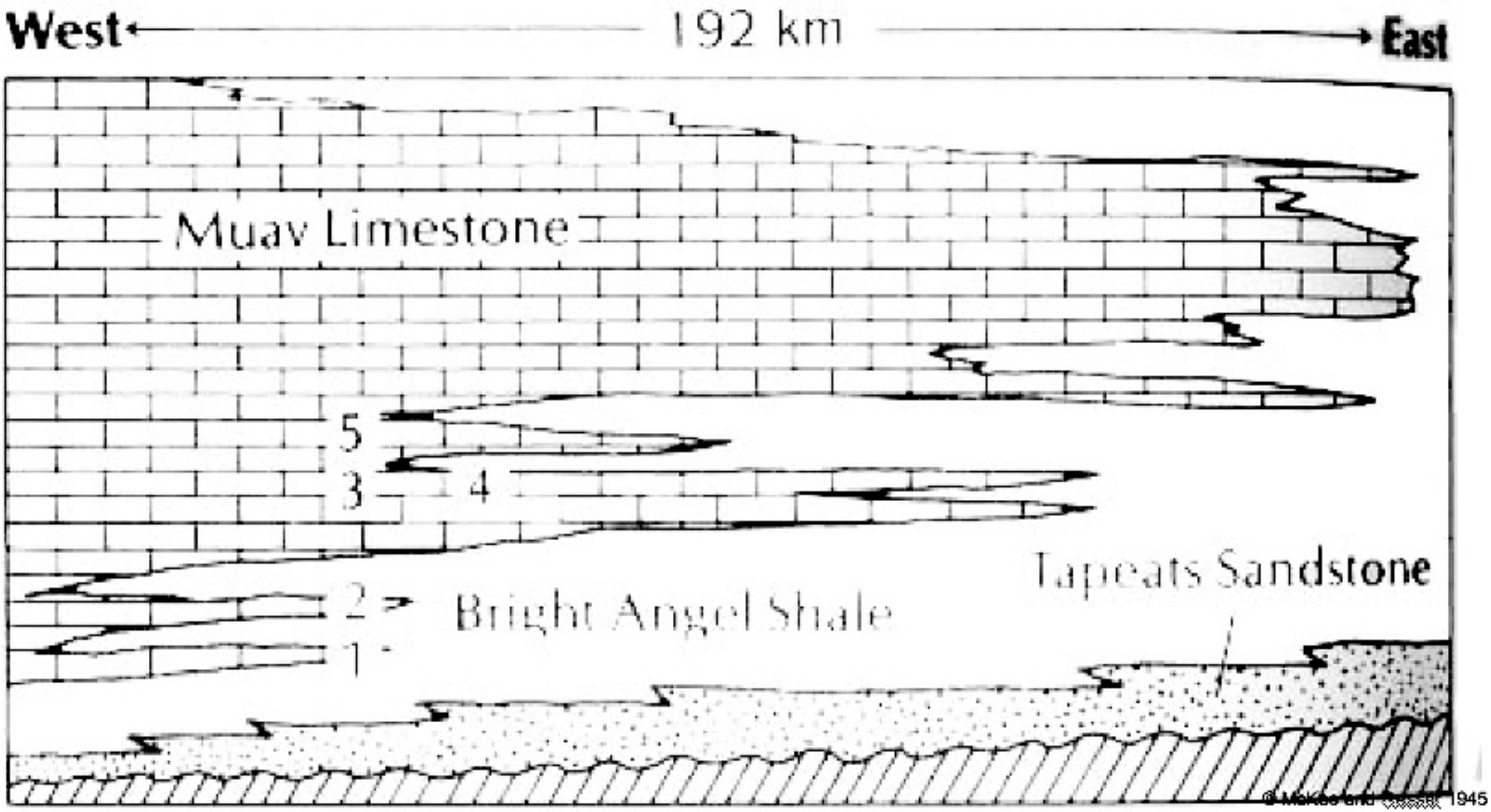
Special Rock Patterns

- Limestone-shale-sandstone indicates a raising water level (Transgression)

- Sandstone-shale-limestone indicates lowering water level (Regression)






West
192 km
East
Muav Limestone
5
3
4
2
1
Bright Angel Shale
Tapeats Sandstone

Evaporite Deposits (SALT)

- When water evaporates, it leaves that salt
- Large salt deposits indicate areas where there was a large amount of water, then it slowly evaporated
- Example: The great salt lake used to be bigger!
- Shallow seas close up with plate tectonics (This may happen with the Mediterranean)

FOSSILS!

- The types of fossils can tell us what type of environment the location was in the past

- Aquatic fossils= aquatic environment

- Terrestrial organisms=terrestrial environment.

Fossil Fuels

- Coal and other fossil fuels are created in warm or cool moist environments where plants were abundant.

- Coal needs an absence of oxygen, so they are also usually swampy areas