EROSION

&

DEPOSITION

E.8.C.2 Students know rocks at Earth's surface weather, forming sediments that are buried then compacted, heated and often recrystallized into new rock.

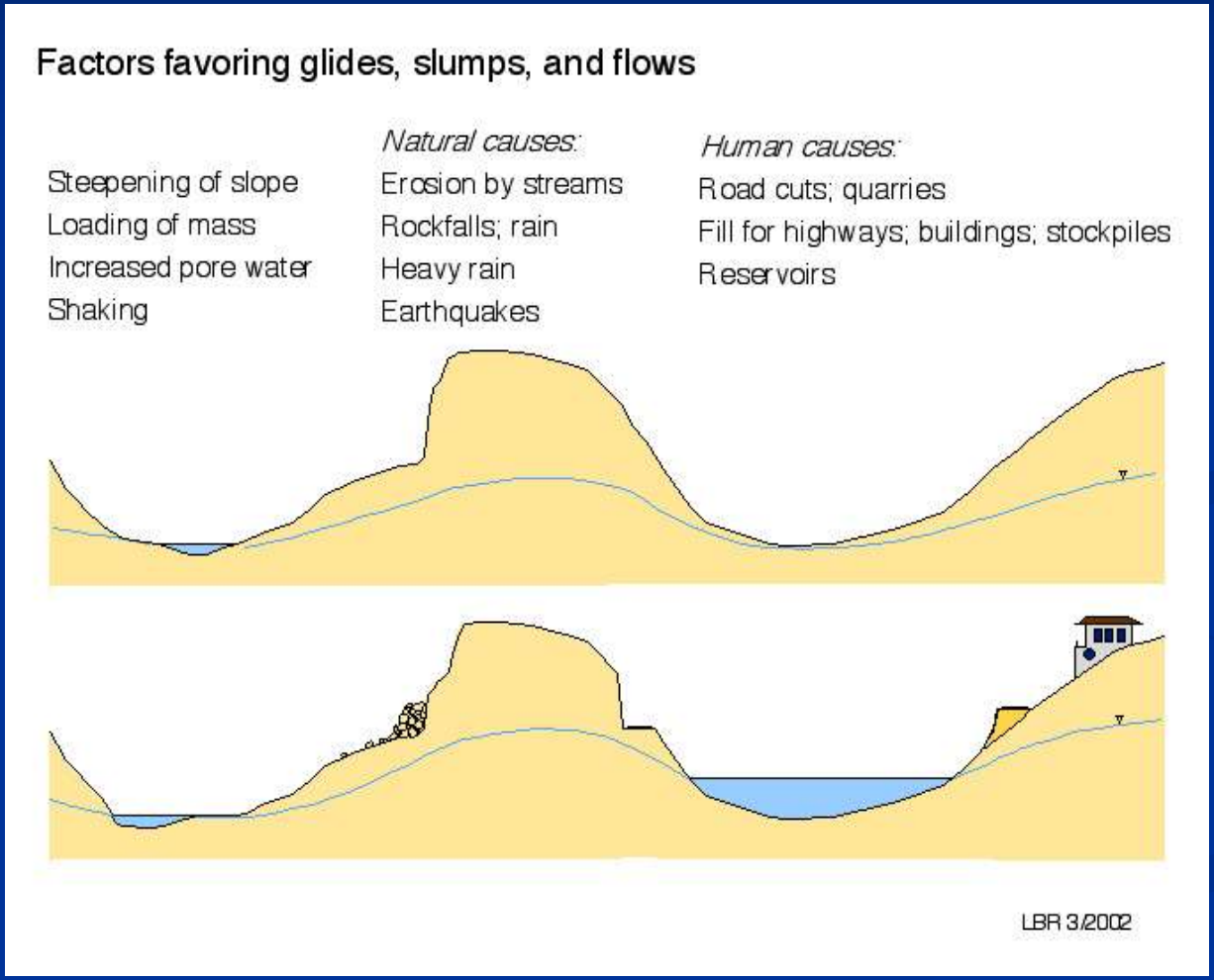
E.8.C.8 Students know soils have properties, such as color, texture, and water retention, and provide nutrients for life according to how they form. E/S

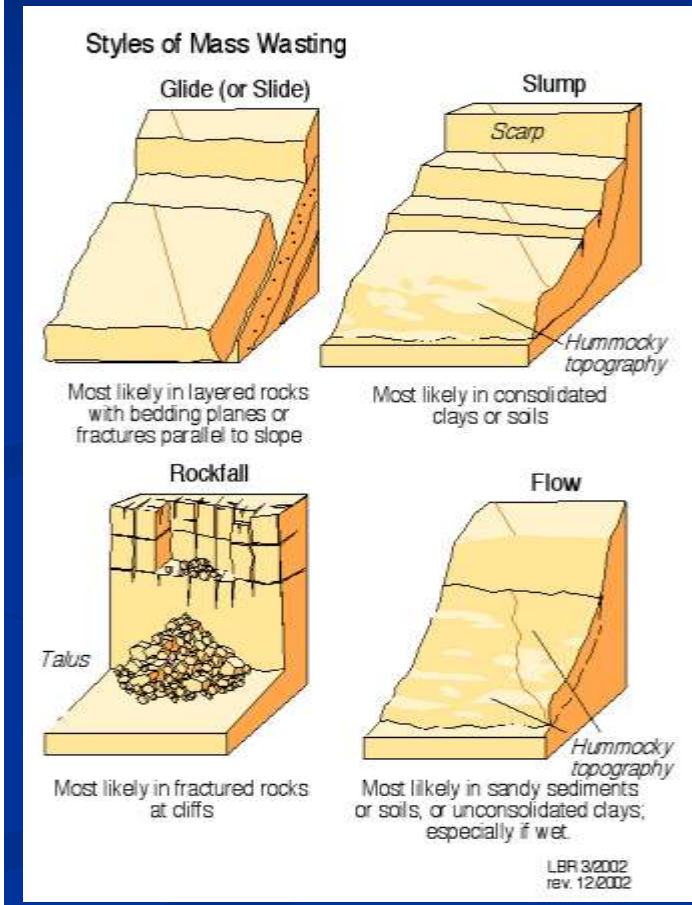
EROSION

- The movement of rock from one place to another; changing the earth's surface

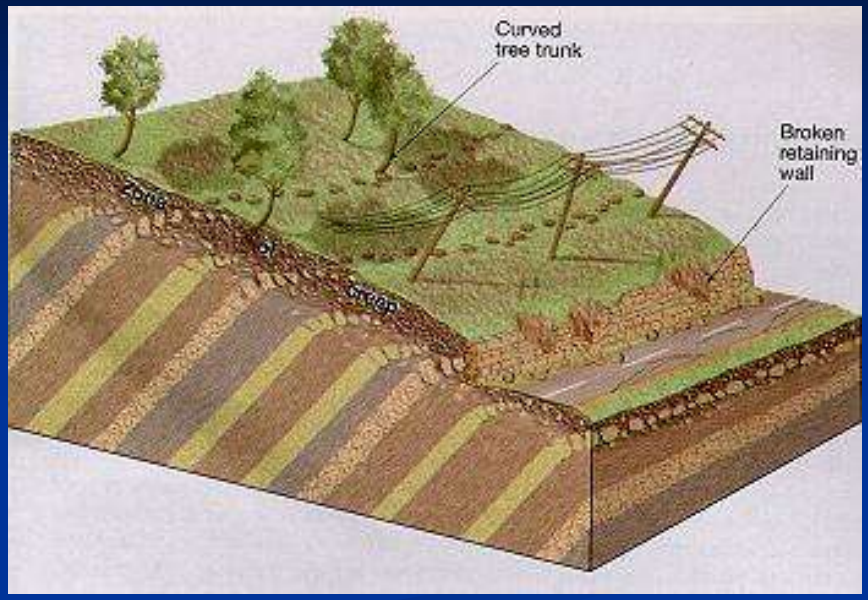
Agents of Erosion

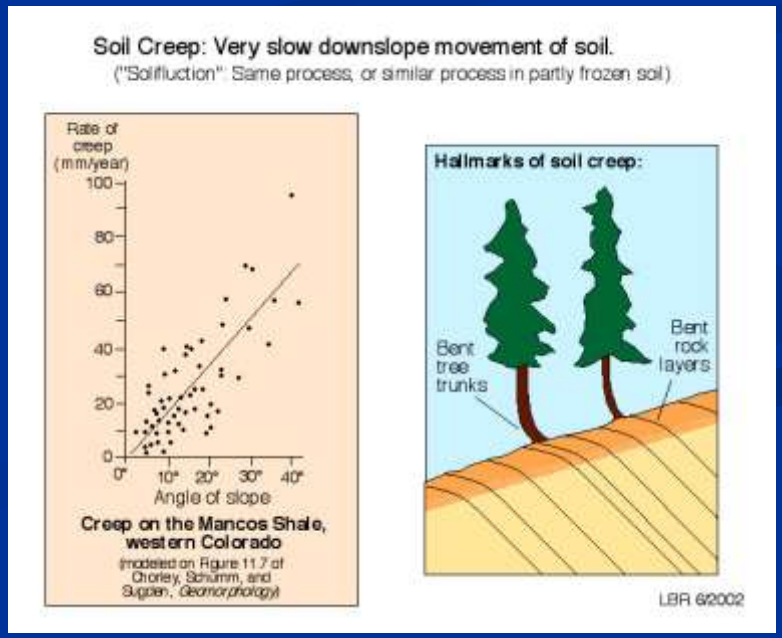
1. Gravity and Mass Wasting





Mass wasting – Slump, Soil Creep

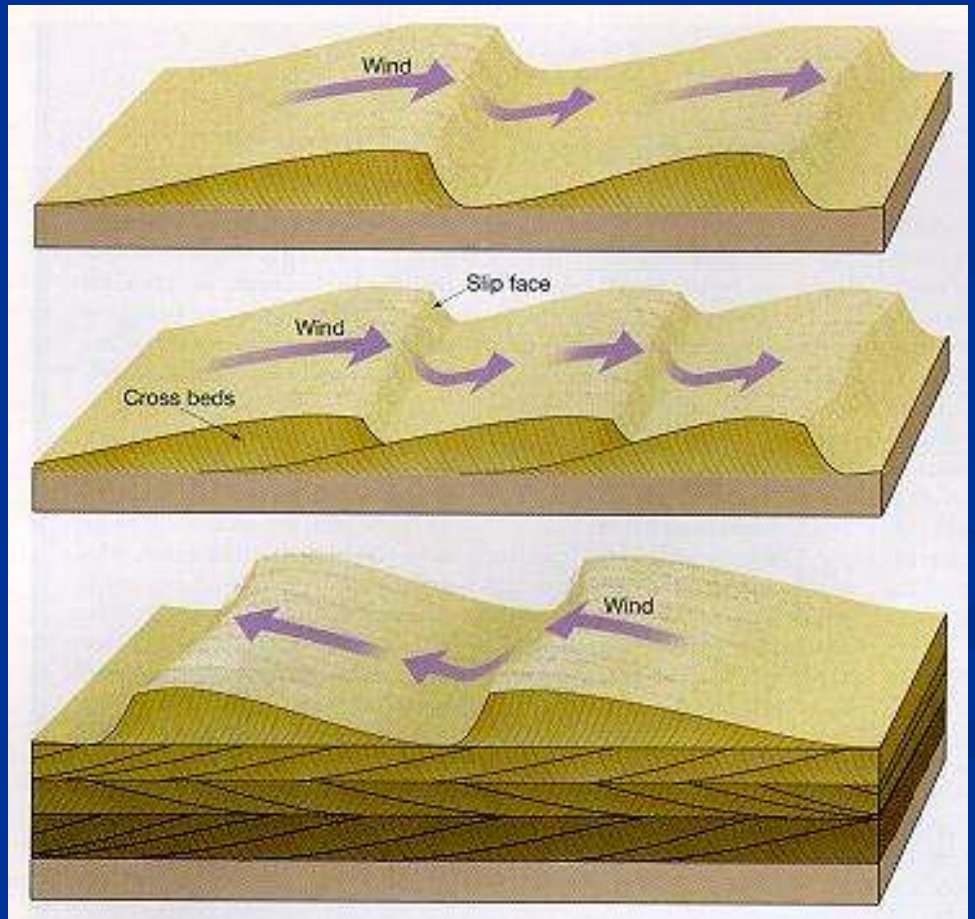




2. WIND – blowing sediment

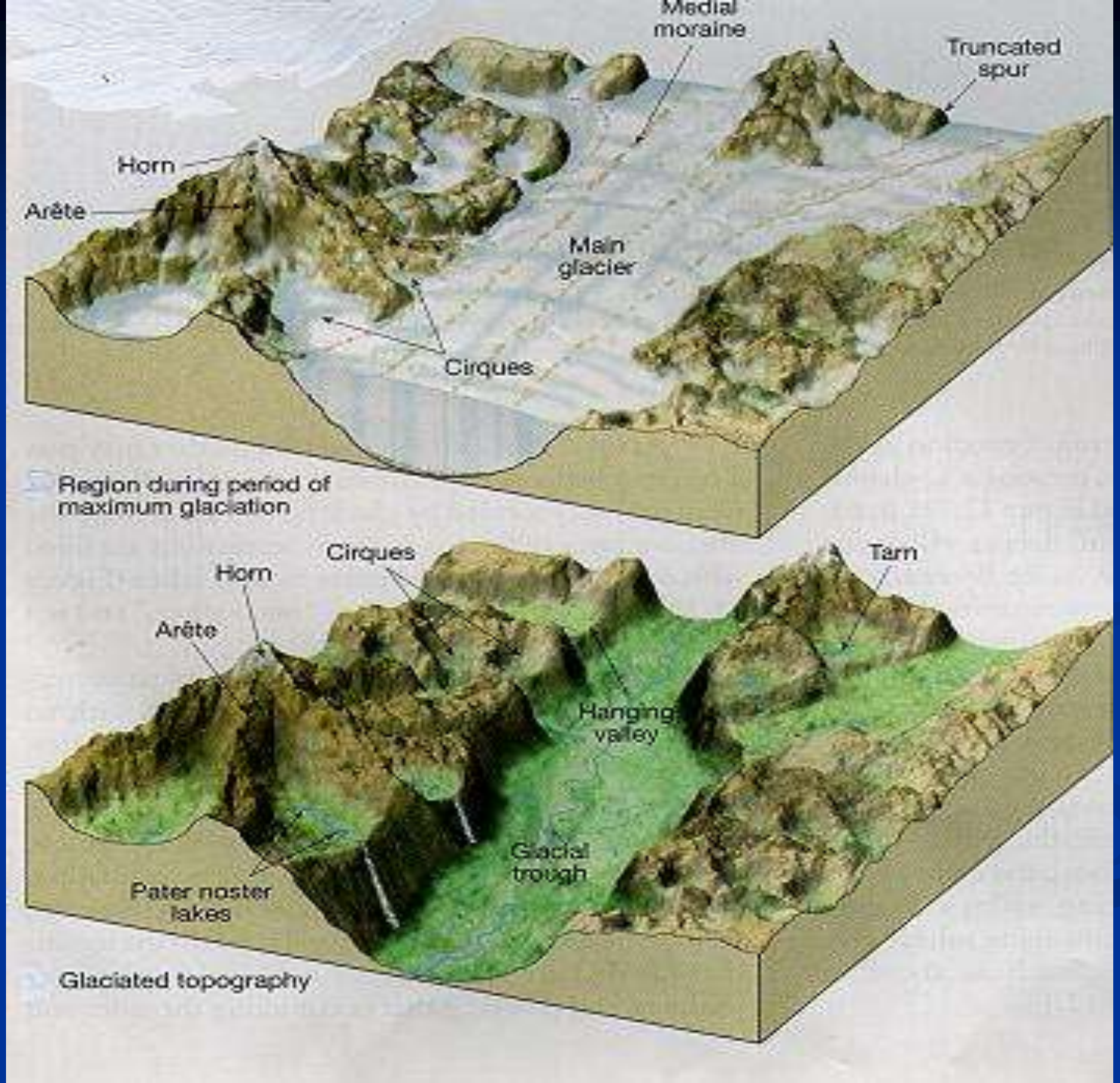
- Wind speed controls the size particle eroded.
  - Typically sand, silt, clay

- Deflation
- Abrasion

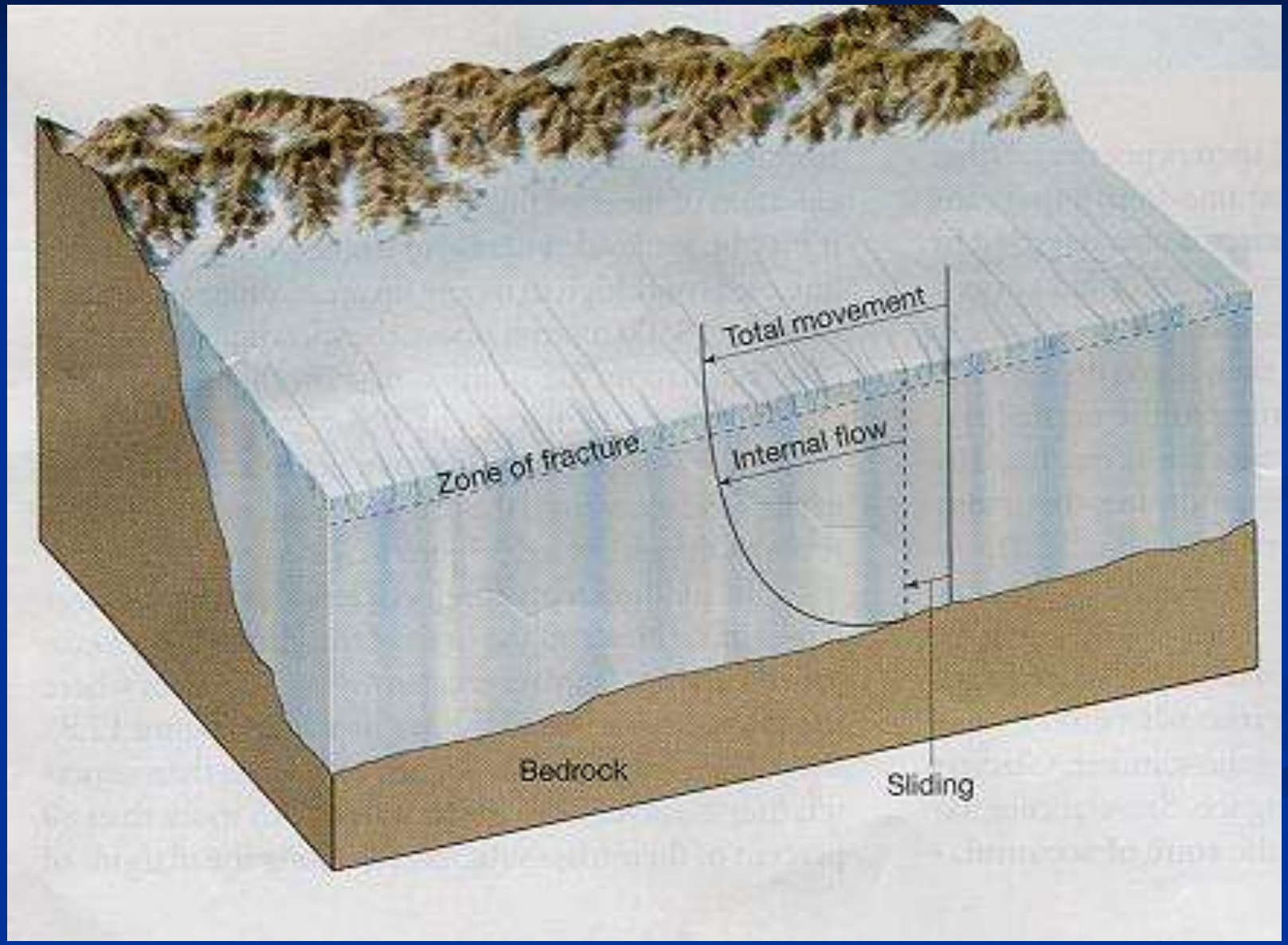


3. **Glaciers (Ice)**

- Large mass of moving Ice and Snow that pick up and move rock as it moves over the land.
- Two Types of glaciers are Continental and Alpine
  - Glacier affects on the land
    - Transported soils covering large areas
    - Wide U-shaped valleys
    - Many lakes
    - Many small hills composed of unsorted sediment
    - Polished and scratched bedrock


Medial moraine
Truncated spur
Horn
Arête
Main glacier
Cirques
Region during period of maximum glaciation
Cirques
Horn
Arête
Tarn
Hanging valley
Glacial trough
Pater noster lakes
Glaciated topography

Glaciers flow like Streams



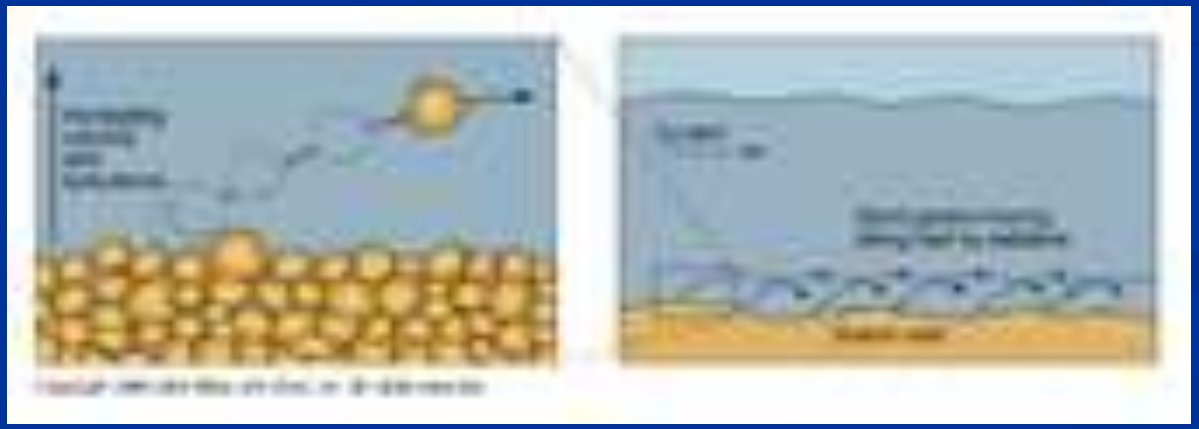
Zones within Glacier

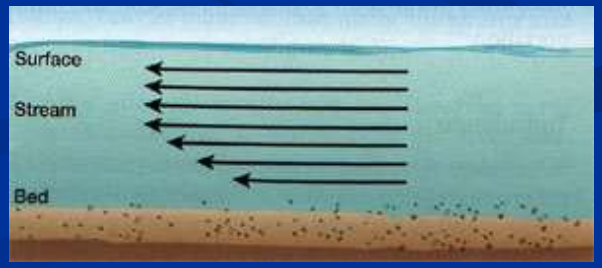
4. Running Water

- Running water is the **dominate** agent of erosion as it dissolve, pick up, and pushes the rock from one place to another.

Water Carry Sediment Three Ways

1) Dissolved minerals carried in **solution**
2) Small pieces of rock are **suspended in the water**
3) Larger sediments carried by **rolling**, and bouncing along with the movement of the water





Sediment Transport!

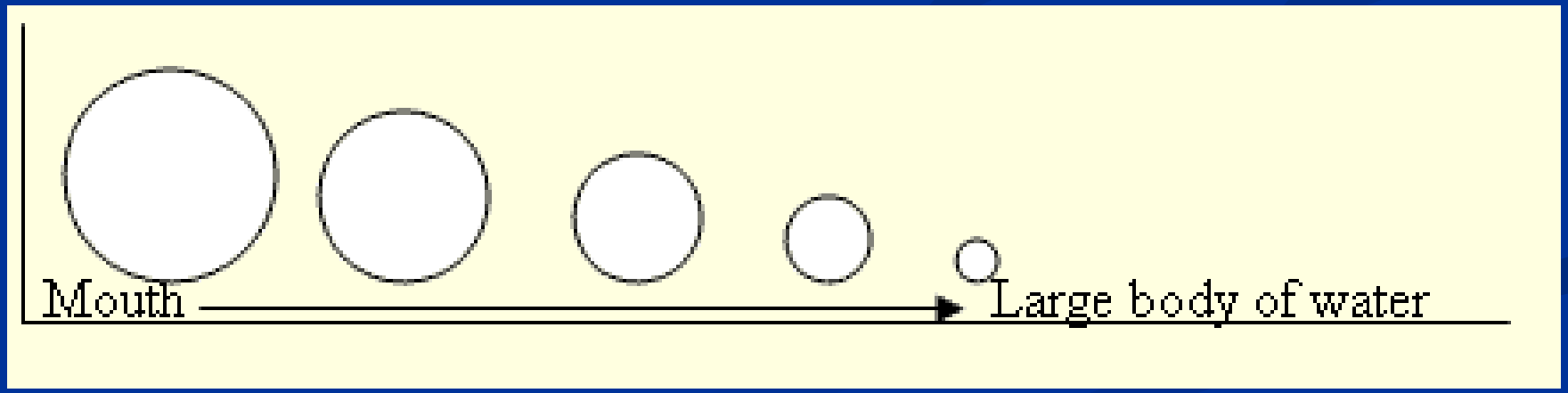
DEPOSITION

- Process by which sediments are **released, settled from, or dropped** from the process of erosion.

- **Erosion** and **Deposition** are opposite processes. When **kinetic energy is high, erosion dominates**. Where slope is gradual or **kinetic energy minimal, deposition dominates.**

Sediment Distribution and Deposition

- **Larger particles** deposited close to the mouth (**high energy environment**) and **finer** sediments are carried out further away from shore (**lower energy environment**).



Youthful Stage of Stream

- High Energy
- Erosion Dominates
- All sediment sizes moved
- V-Shaped valley
- Rapids, Waterfalls

Mature Stage of Stream

- Less erosion down-cutting and an increase in side-cutting (widening of stream channel)
- Smaller particles eroded
- Meandering (winding or curvy)
- Development of Floodplain
- Deposition of larger sediments

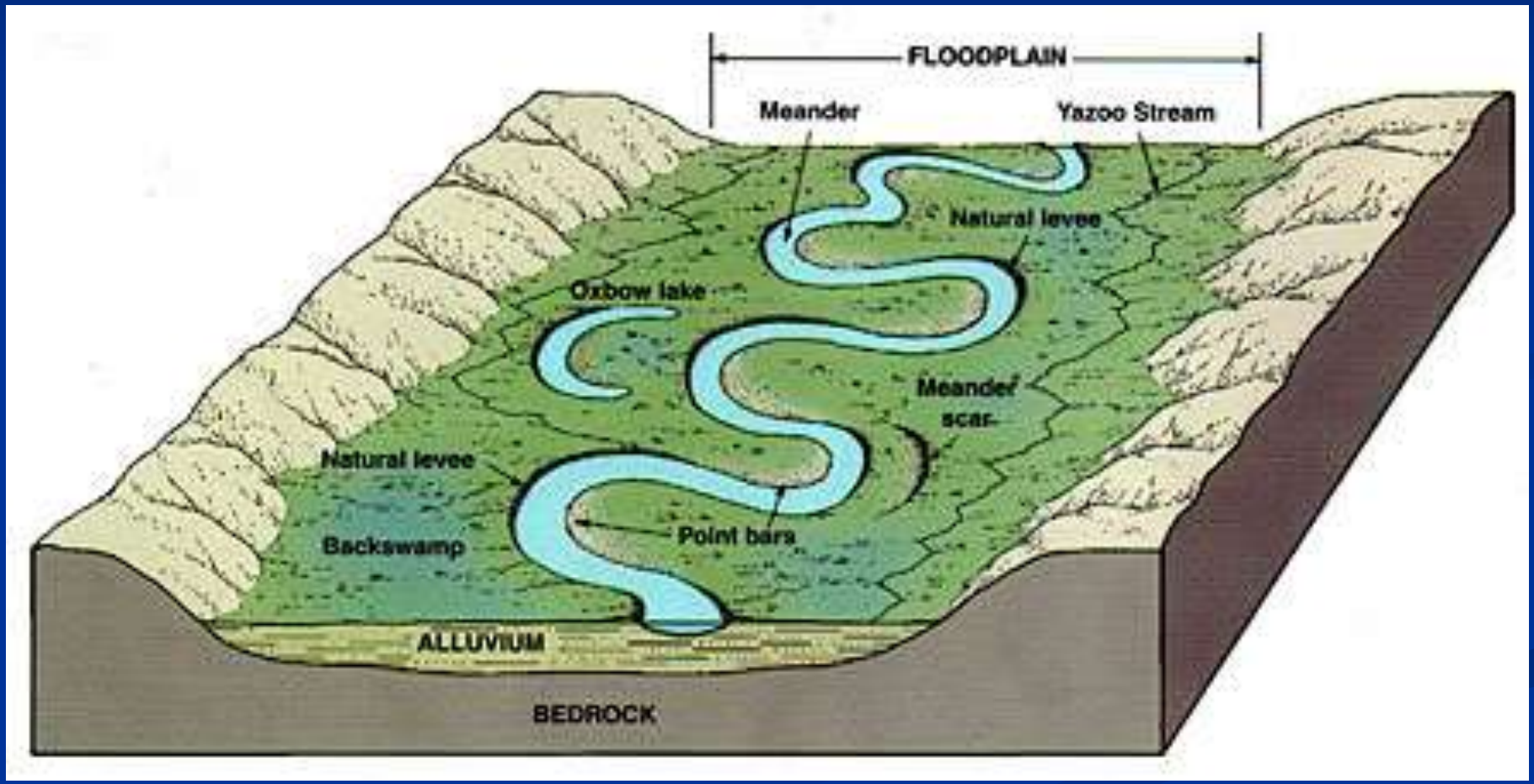
Reduced Gradient

Meandering Sacramento Valley

Old Age of Stream

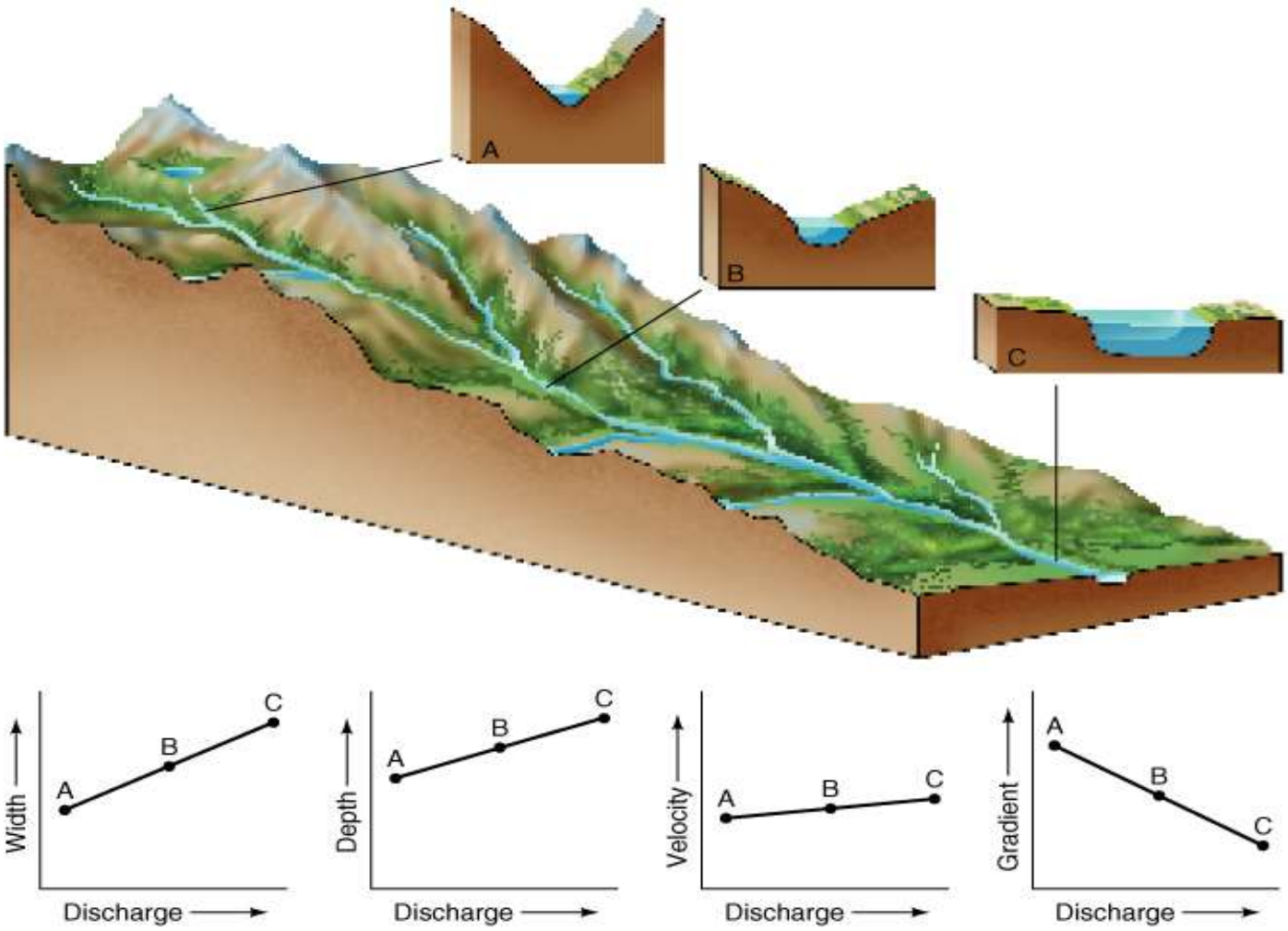
- Over meandering (Oxbow lakes)
- Well-developed Floodplain
- Deposition Dominates

Mature/Old Age Stage

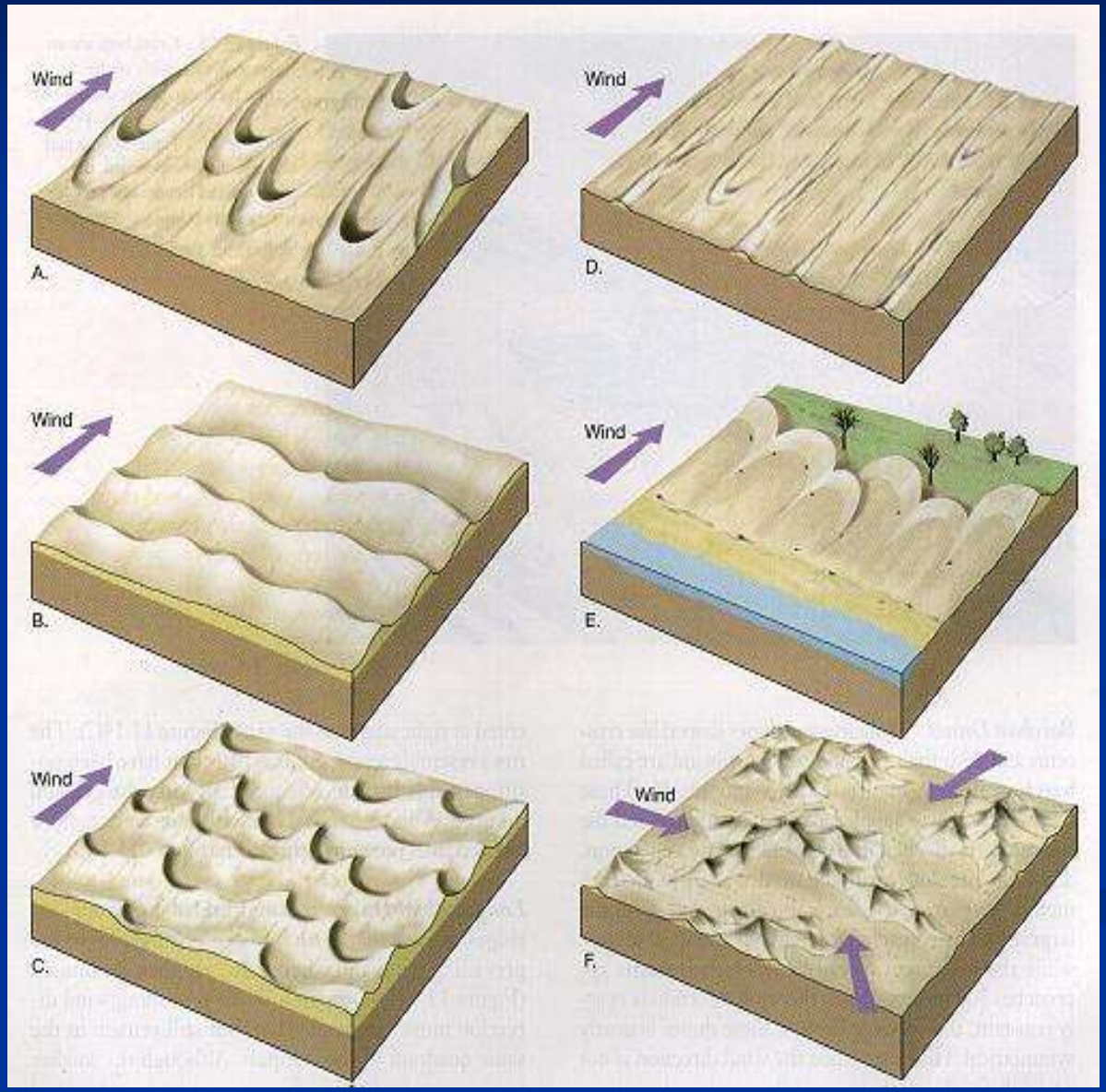


Age of Stream Review

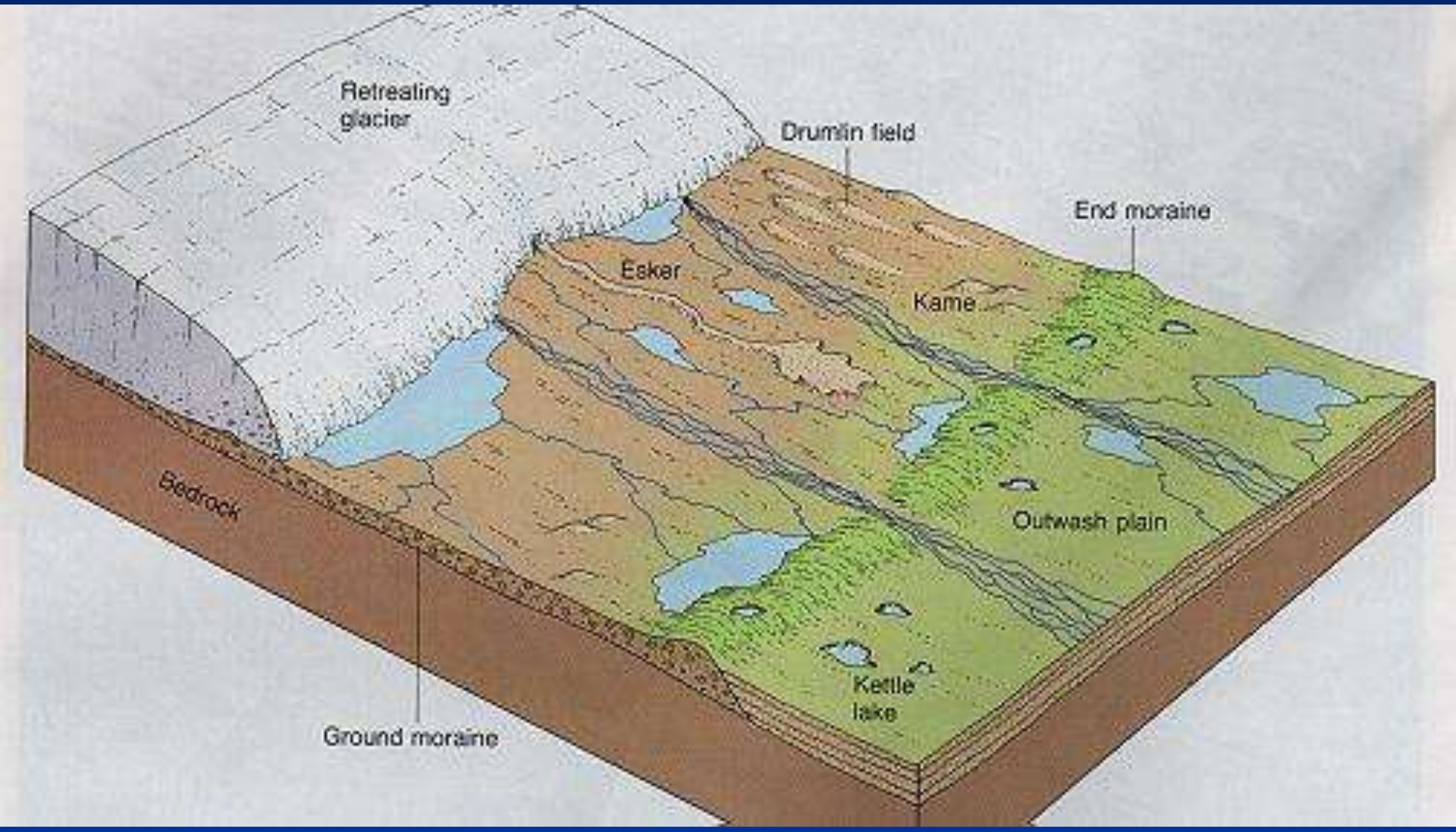
A. Young
B. Mature
C. Old



Deposition by Wind
Types of Dunes



Glacier Depositional Features



Graded Bedding

- Unsorted sediment dumped into quiet body of water.
  - Heavy/Dense settle first
  - Round settle faster than disc shaped