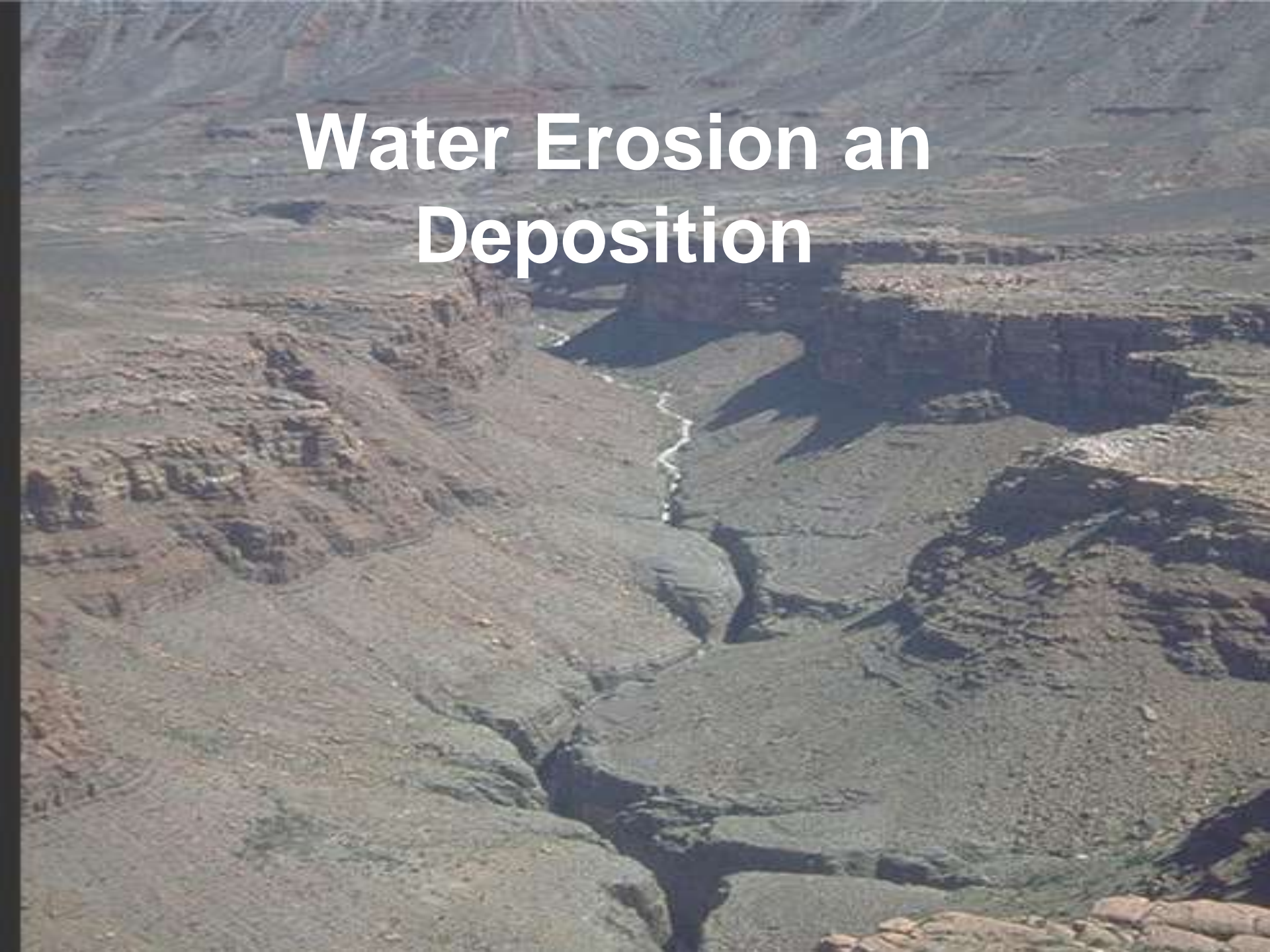


Water Erosion and Deposition



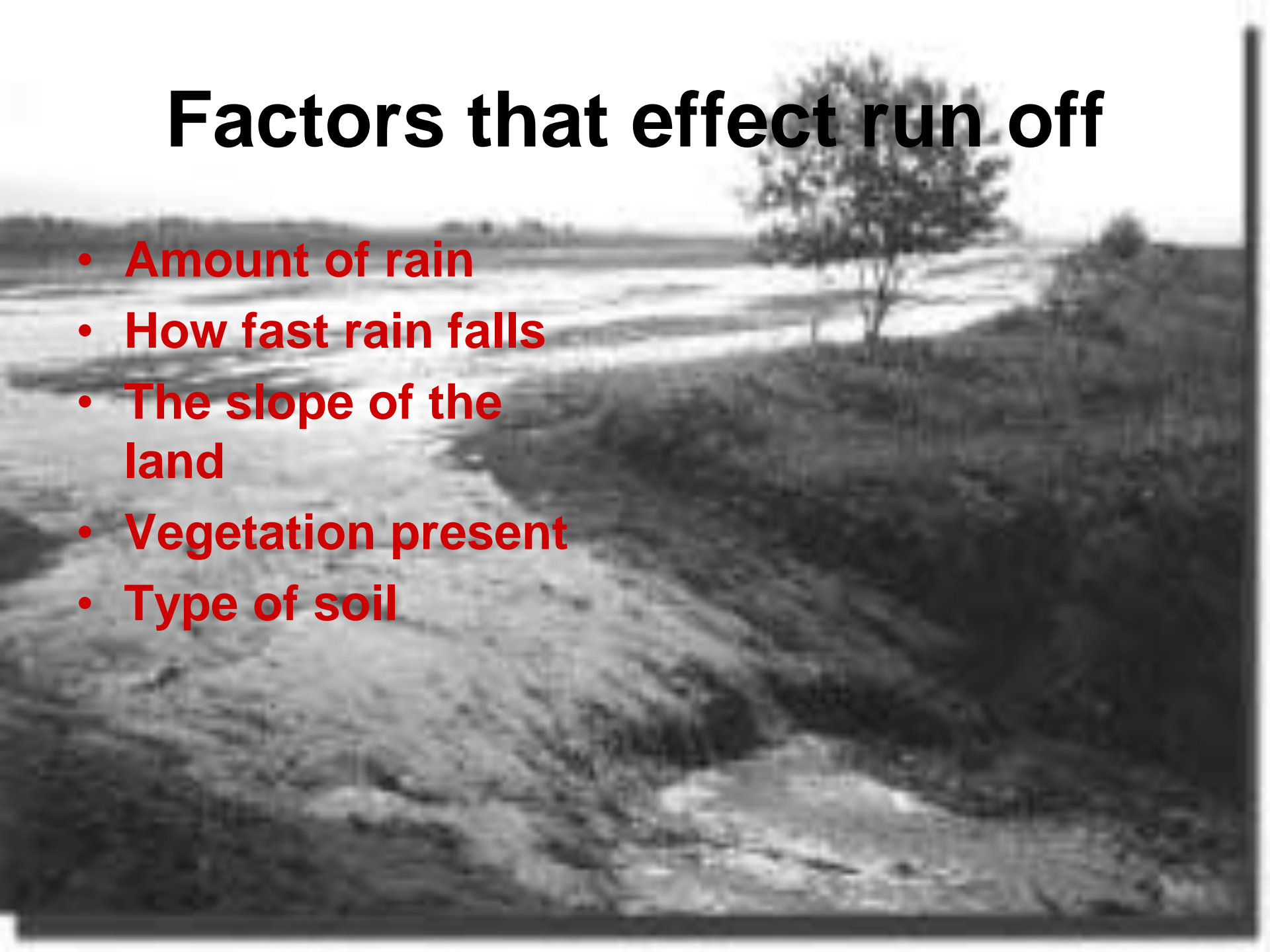
Surface Water Runoff

- **Water that doesn't soak in the ground and eventually enters a stream or lake**



Factors that effect run off

- Amount of rain
- How fast rain falls
- The slope of the land
- Vegetation present
- Type of soil



The effects of gravity

- **Gravity pulls things toward the center of a mass**
 - The farther some thing falls the faster it moves
 - Things accelerate toward the earths center at 9.8 m/s^2
 - Falling water has much more energy than a moving stream



An erosion gully
Images of Agriculture Vol.1. No.1241064

Water erosion – path worn by running water

- Rill & Gully Erosion
- Sheet Erosion
- Stream Erosion

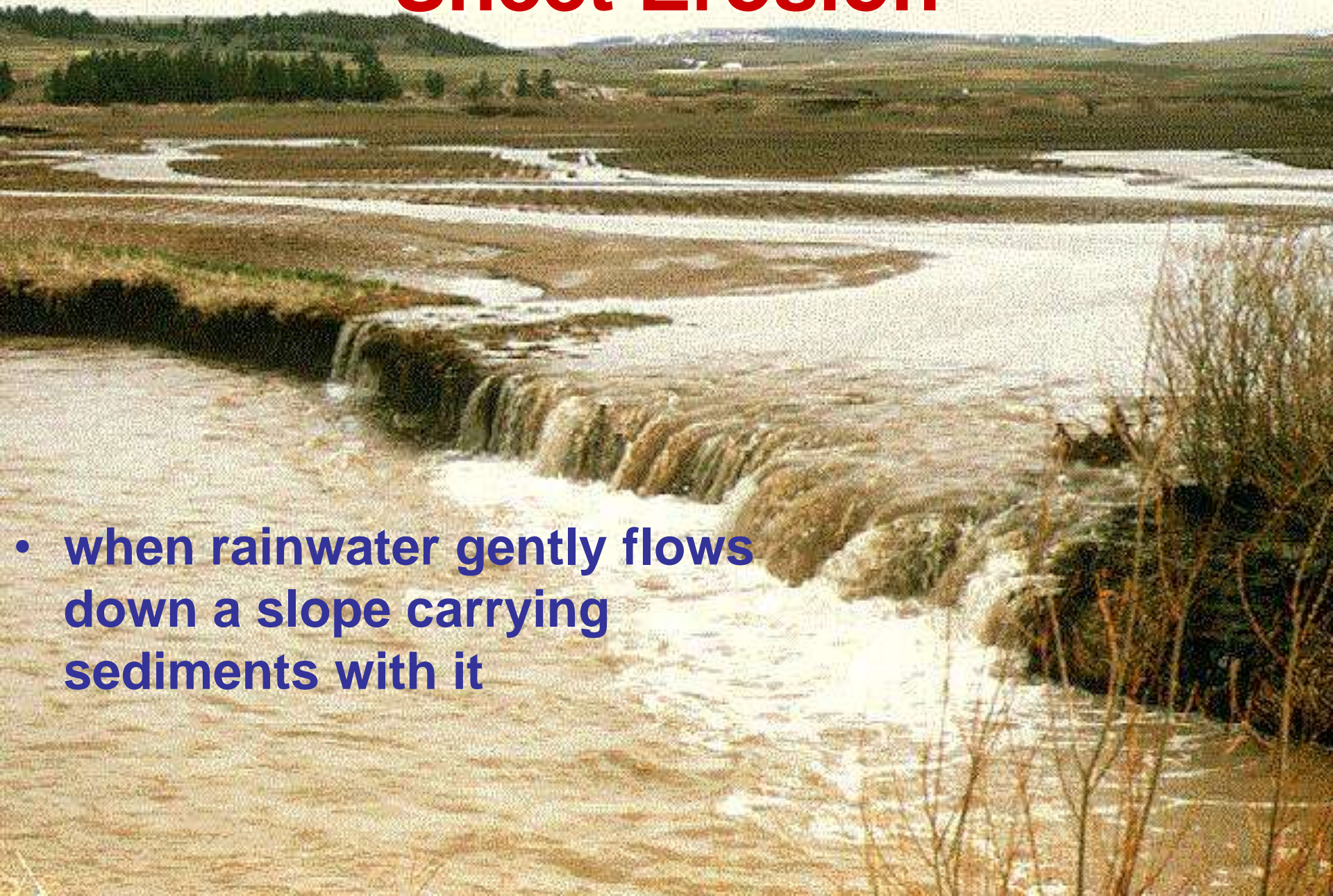


Rill & gully erosion



- **Rill-** when small streams from heavy rain and move dirt & vegetation
- **Gully** – when a rill channel becomes broader and deeper from larger volumes of water running through them.

Sheet Erosion



- when rainwater gently flows down a slope carrying sediments with it

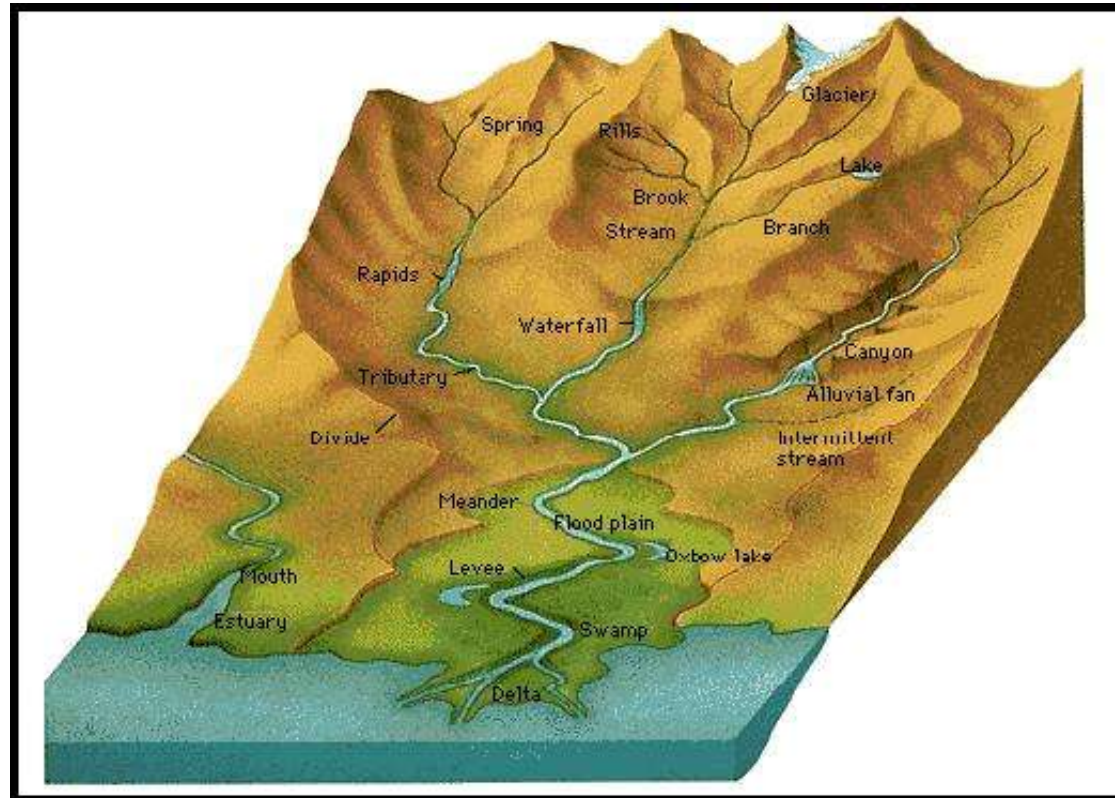
Stream Erosion

- continual erosion from a steady stream of water



River system development

- River system – comes from rills gullies and springs that run together to form a river

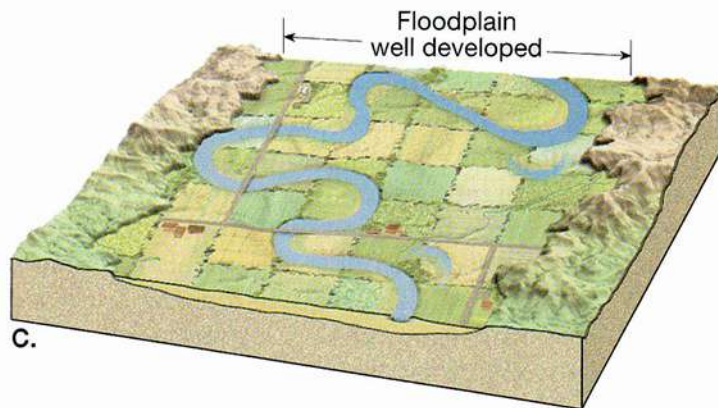
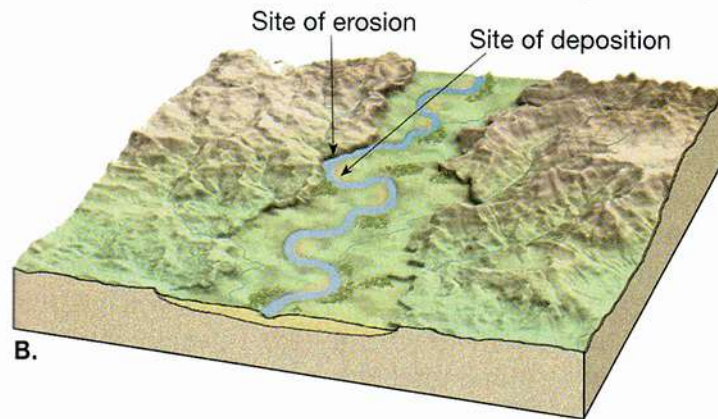
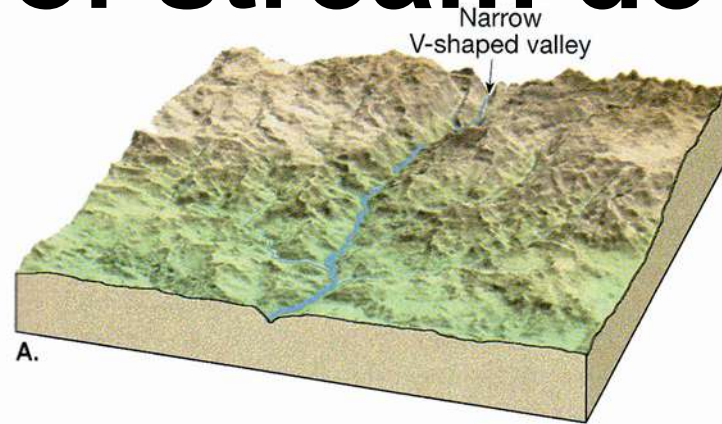


Drainage basin



Pfafstetter Level 2 Subdivision of Mississippi Basin

Stages of stream development



Young streams

- **Move swiftly and have steep sides and are straighter**



Mature stream

An aerial photograph of a mature stream. The stream flows from the top left towards the bottom right, exhibiting several distinct meanders. The surrounding landscape is a mix of light and dark gray tones, indicating a flood plain with varying vegetation and soil types. The stream's path is clearly defined against the flatter, broader valley floor.

- **Move slower**
 - Erode much of the rocks away
 - Curves more called meander
 - Has broader flatter valley called a flood plain

Old streams

- Flows slowly through a broad flood plain



Deposition by surface water

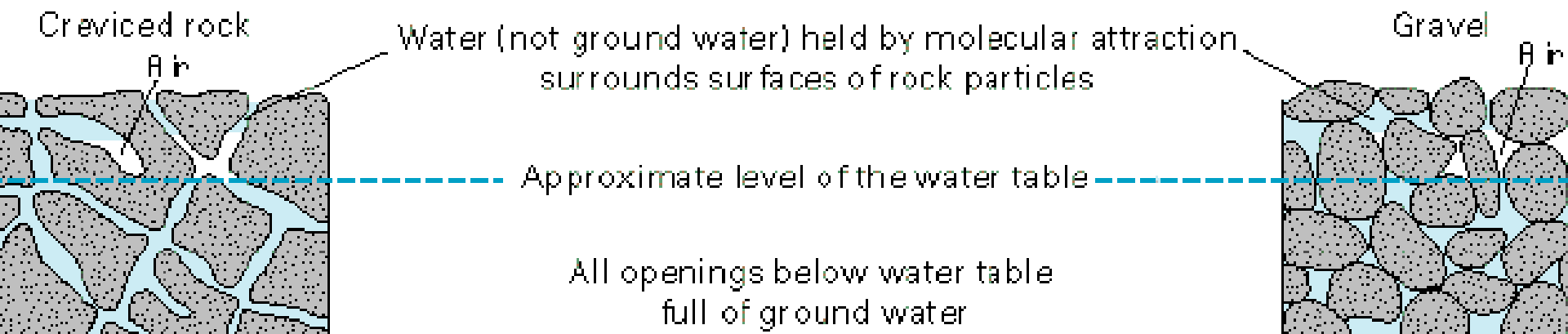
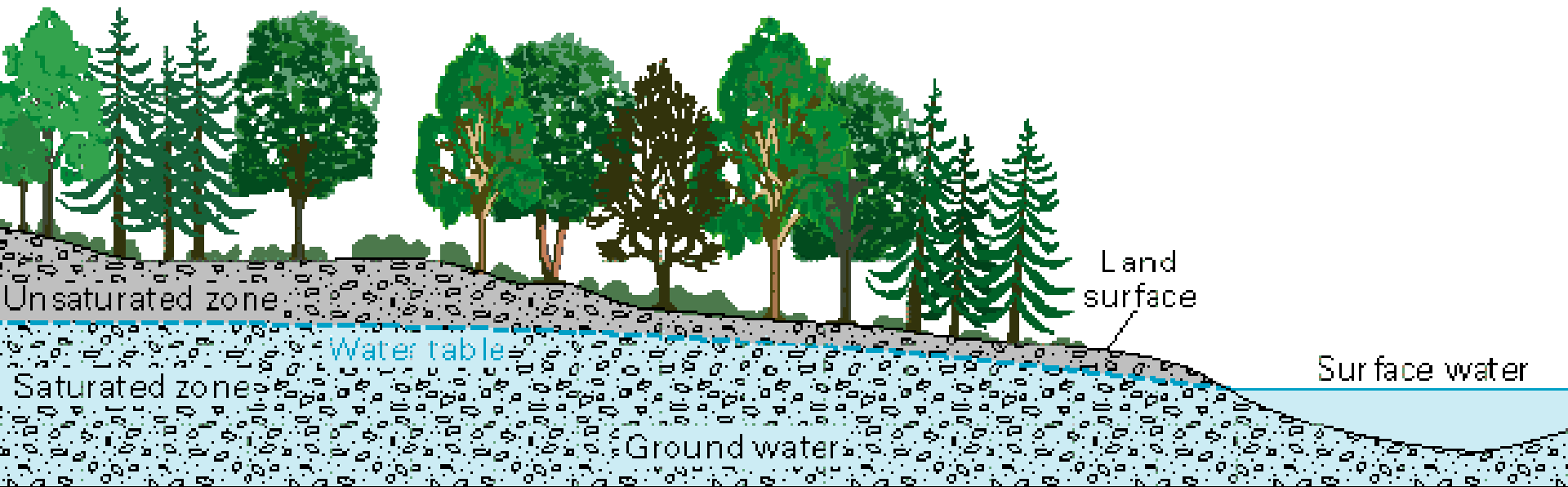
- Alluvial fan – sediments fan out as they come through a smaller opening, gully, or stream
- Delta – when sediments are deposited into a lake or ocean by a stream



Example Mississippi delta

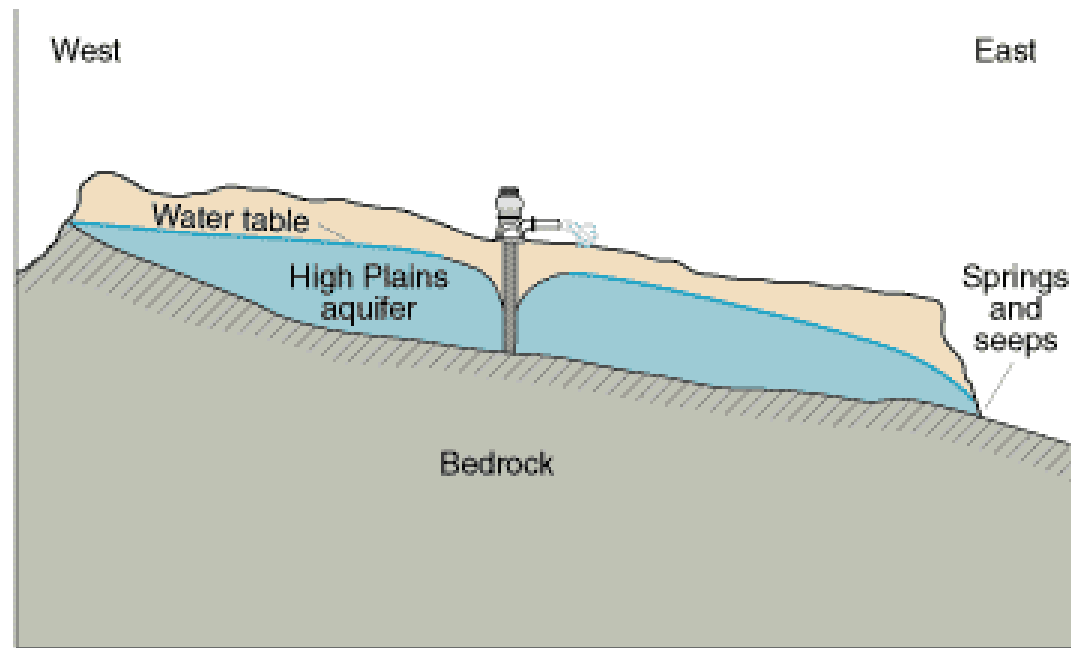
Ground water

- water that collects in pores underground



Ground water system development

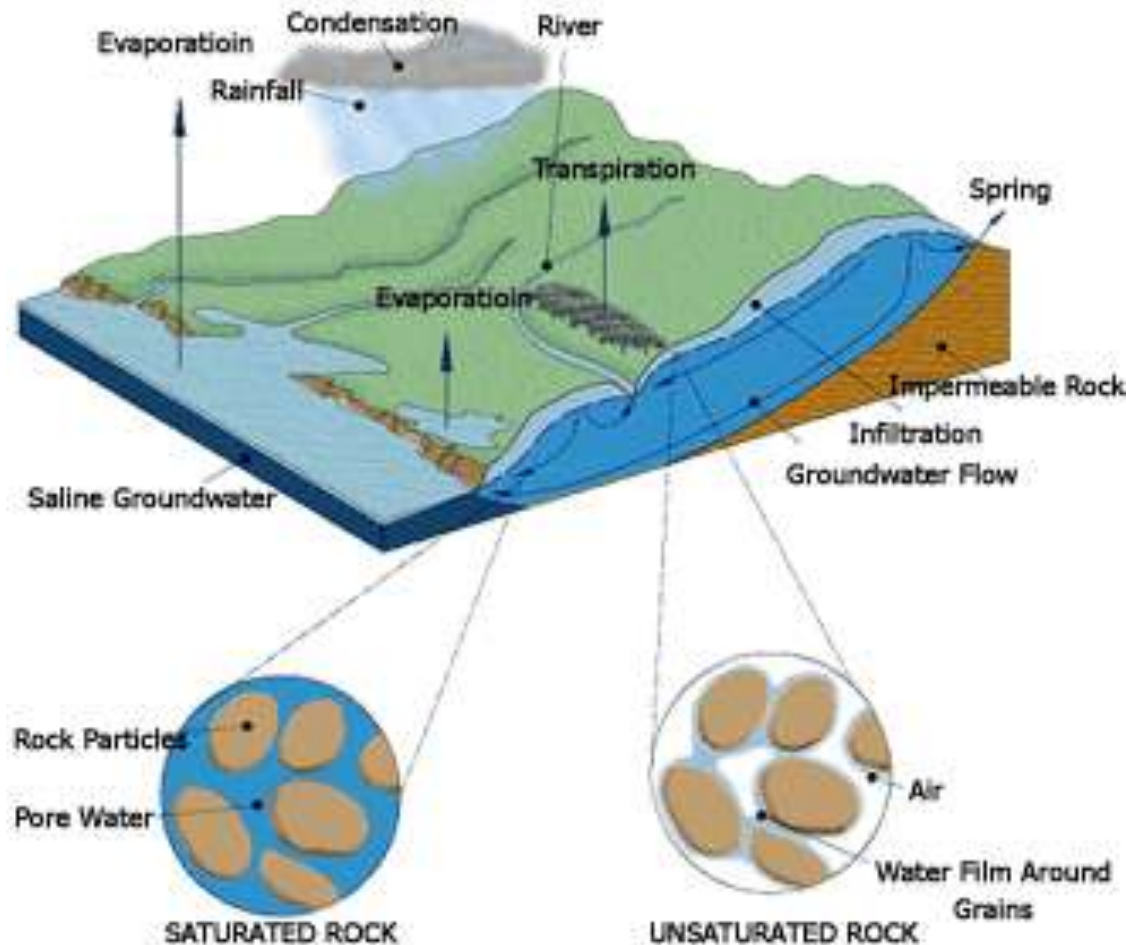
- **Permeability – how easily soils allow water to pass through**
- **Ground water movement**
 - Water fills pores above the impermeable layer
- **When this happens an aquifer is formed**



Vertical scale greatly exaggerated

Water Table & Saturation

- When all the pores are filled with water this is the zone of saturation
- The upper surface of this zone is the water table



Wells, springs and geysers

- **Wells**
 - Pipe put down in an aquifer with perforation on the bottom of the pipe to let water infiltrate
- **Artesian well**
 - Well in which water under pressure rises to the surface



Flowing ground water

Springs

- **Where water table meets earths surface**
- **Hot springs – water from down close to molten rock**



Geysers

- ground water heating and expanding until the pressured water shoots out of an opening in the earth



Ground erosion and deposition in the Ocean

- Ocean shoreline erosion & deposition – constantly worn away by water
- The shore and shoreline forces
 - Tides
 - Waves
- Long shore currents
- Rocky Shorelines
- Sandy Beaches
- Sand erosion and deposition
- Barrier Islands



Caves

The image shows the interior of a cave with a high density of brown, fibrous mineral deposits. These deposits, known as stalactites, hang from the ceiling in various lengths and thicknesses, some appearing as thin, delicate strands and others as thicker, more substantial columns. The background is dark, highlighting the intricate textures and colors of the mineral formations.

- Form from water erosion and deposition
 - Water dissolves rock and mineral and moves it by the force of gravity

Cave Formations

- Stalactites
- Stalagmites



Quiz

Name _____

- Give the four factors that effect water runoff erosion.
- What three types of water erosion are mentioned in the chapter?
- What are the three stages of stream development?
- What is the difference between stalactites and stalagmites and what causes them to form