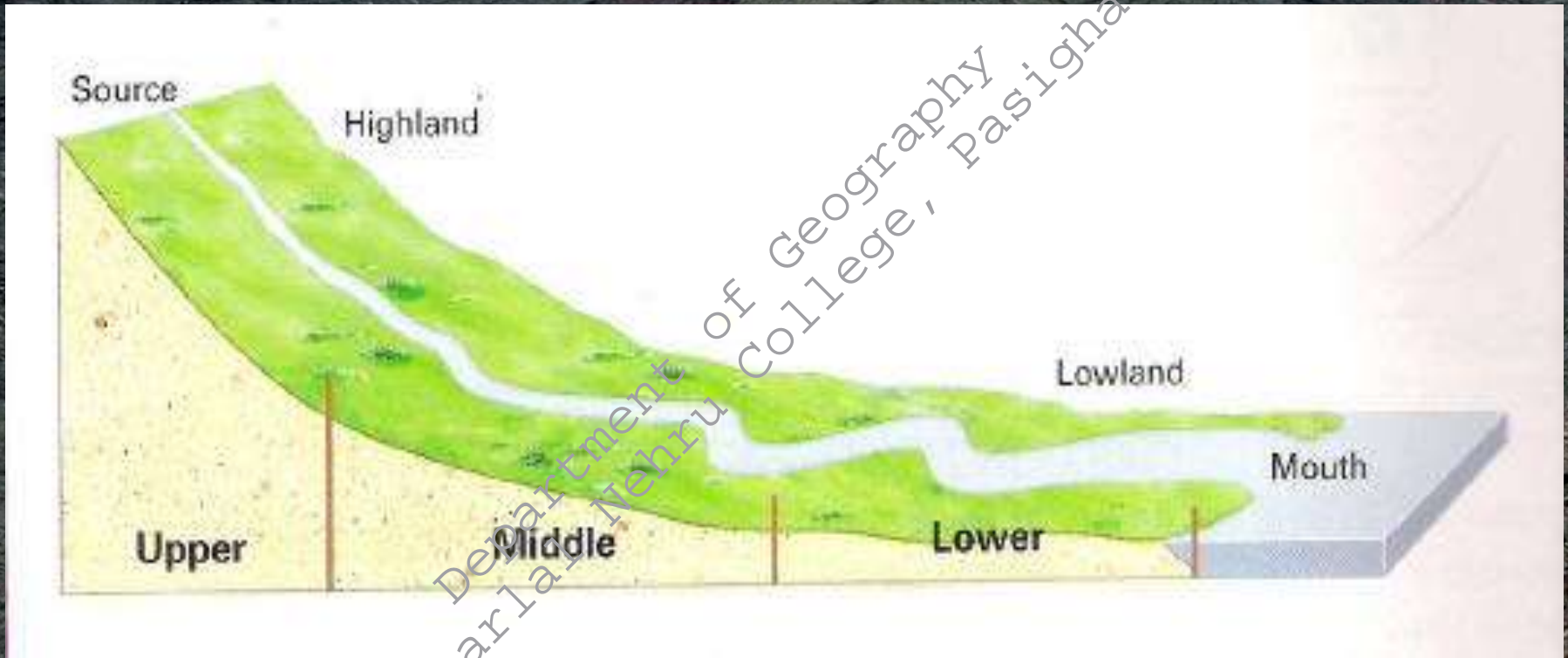


FLUVIAL LANDFORMS

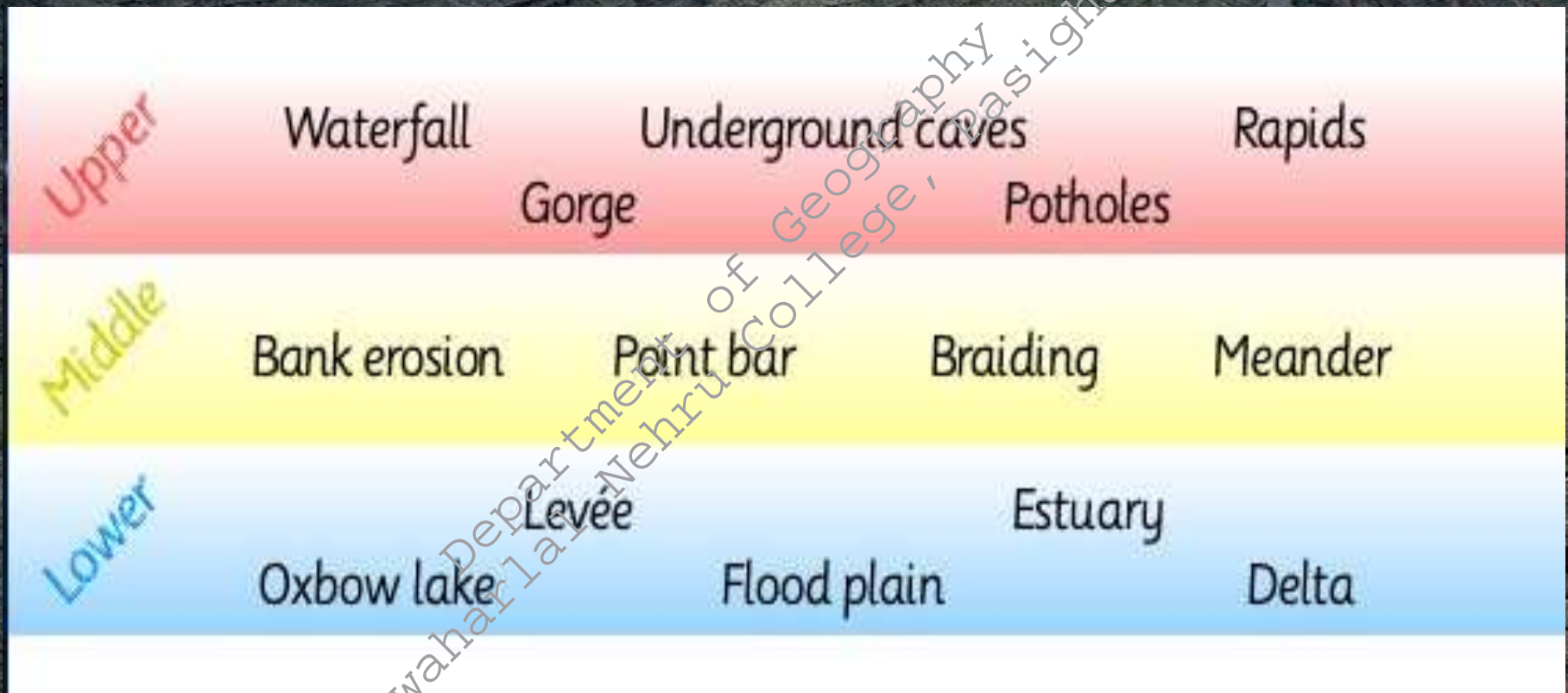
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Three Stages of a river



Fluvial landforms in different stages of the river



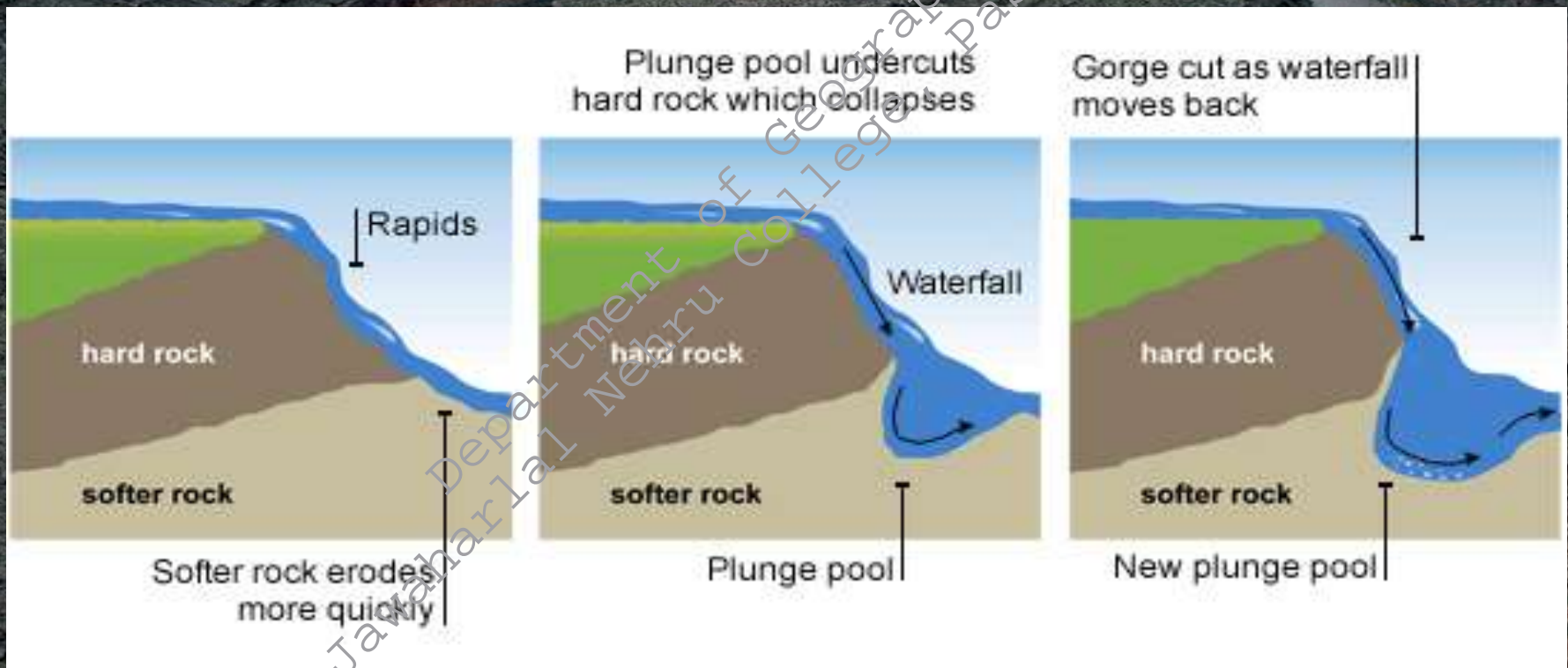
FLUVIAL EROSIONAL LANDFORMS



- ❖ Canyon and Gorge
- ❖ River Valleys
- ❖ Waterfall
- ❖ Potholes
- ❖ Stream terraces
- ❖ Structural benches
- ❖ River Meanders
- ❖ Oxbow lakes

WATERFALL

- A waterfall is when a river falls over a vertical slope.
- It is found in the youth stage of a river where there are areas of hard and soft rocks.



waterfalls

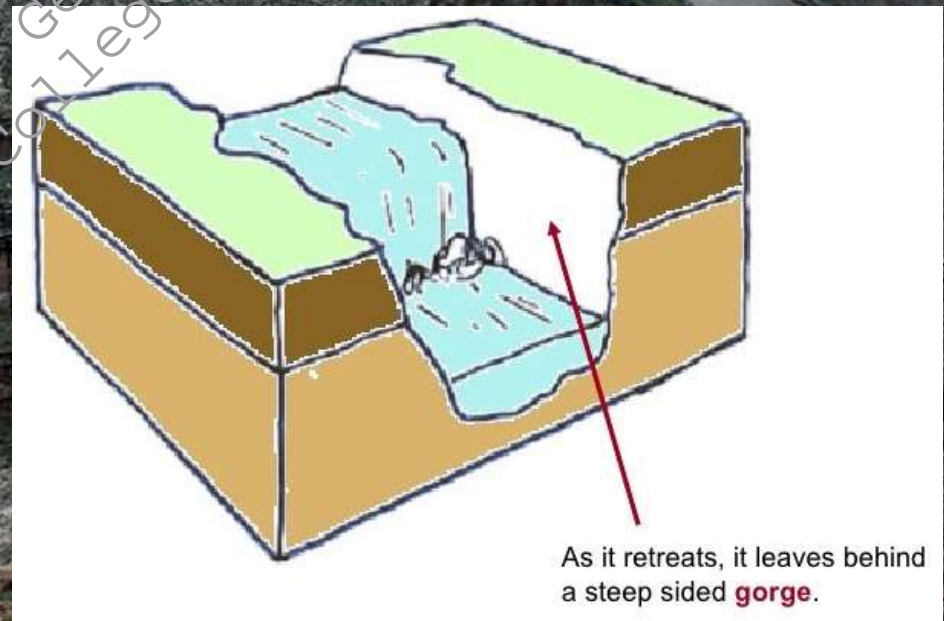


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Canyon and Gorge

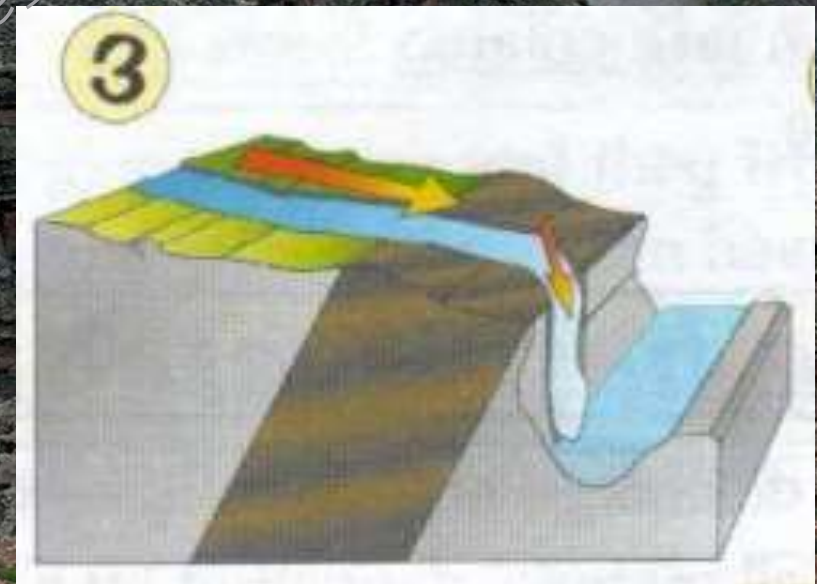
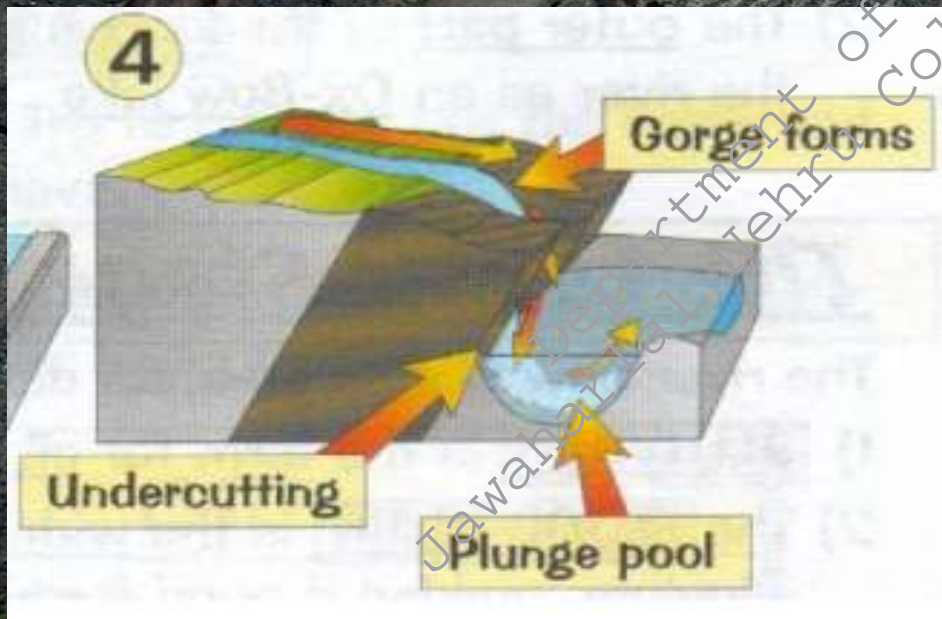
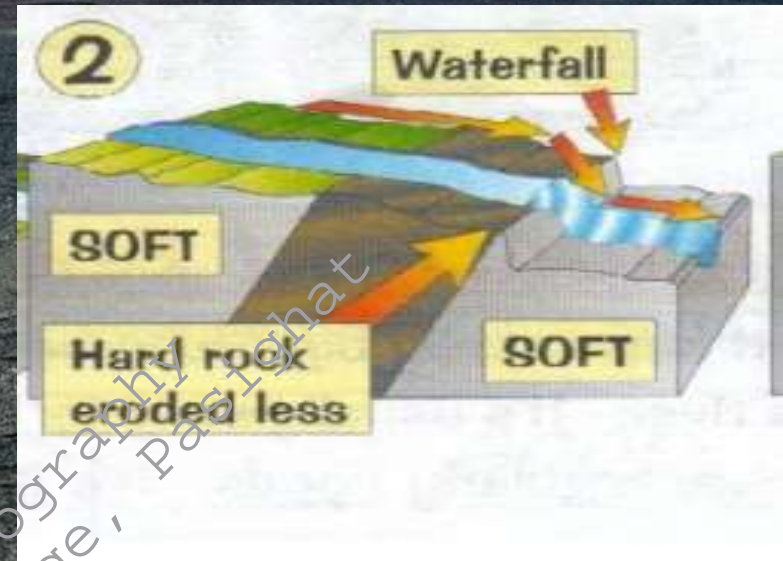
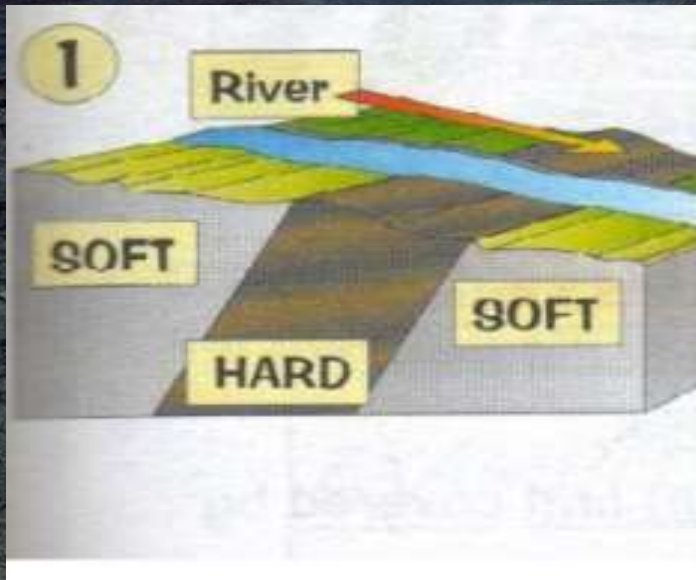
- ✓ Canyon (US) or Gorge (Europe) represents very deep and narrow valleys having very steep valley side slopes.
- ✓ They are mostly formed when the process of forming a waterfall is repeated frequently, as the waterfall retreats upstream



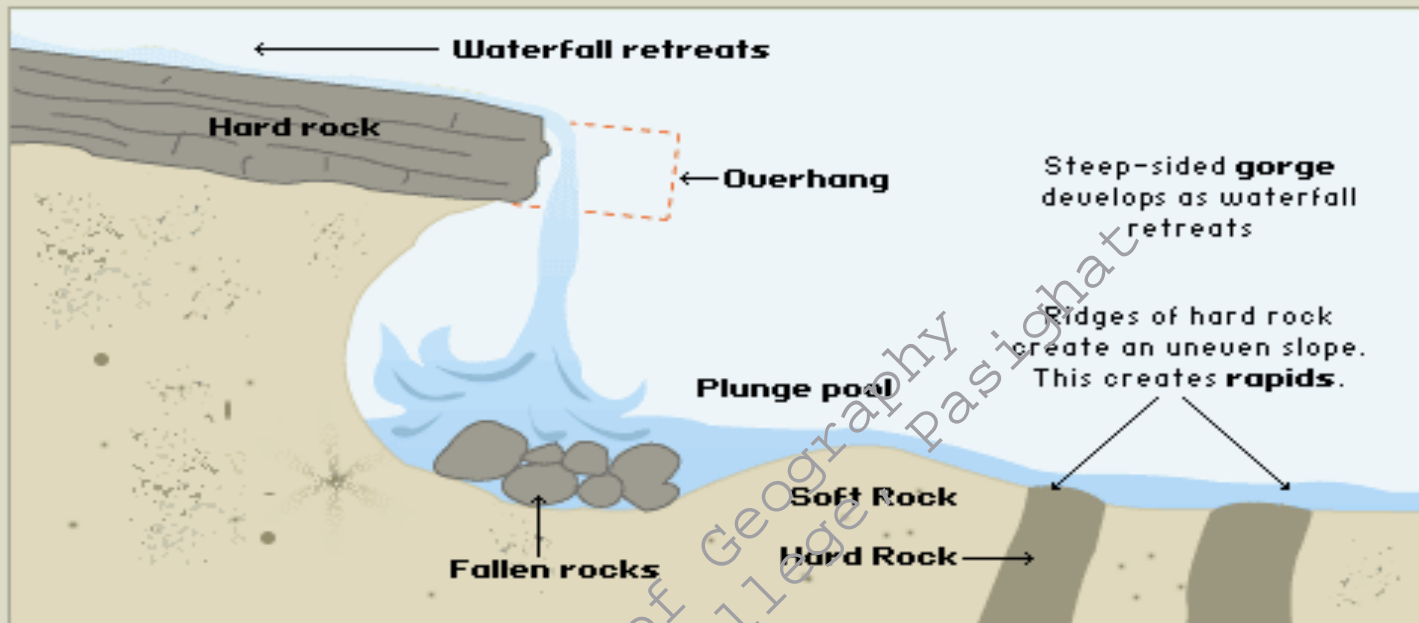
As it retreats, it leaves behind a steep sided **gorge**.

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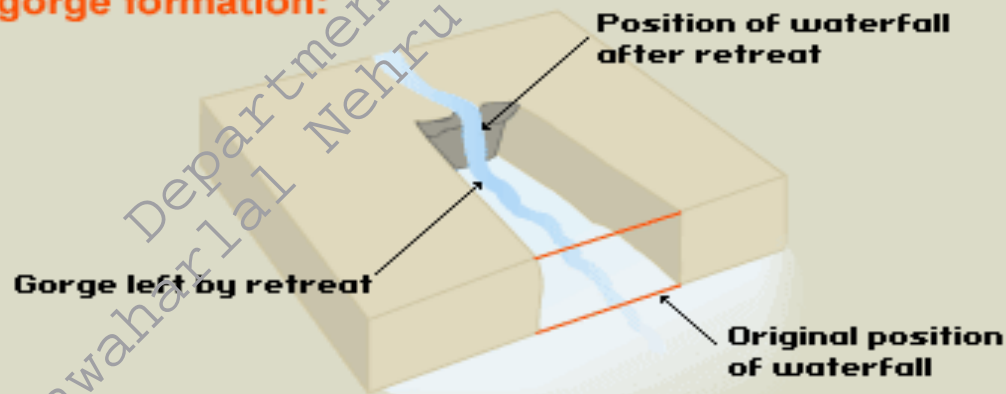
Formation of a gorge



Waterfall and gorge formation



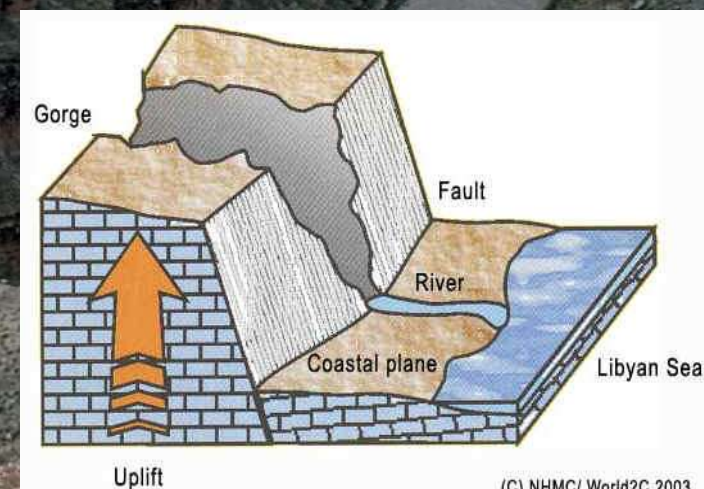
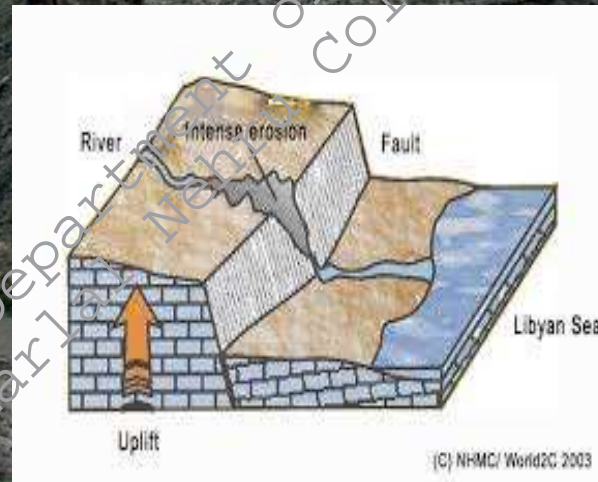
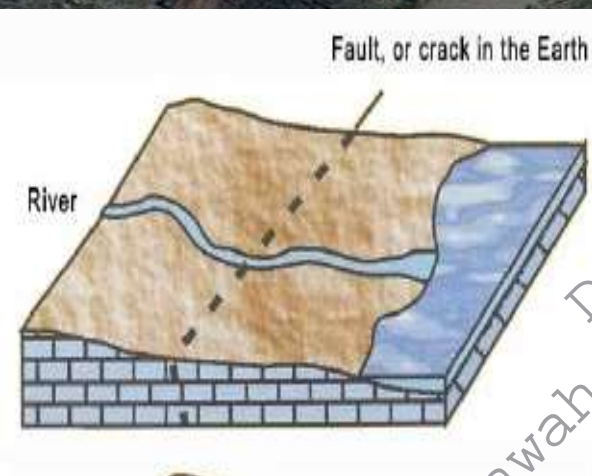
Block diagram showing gorge formation:



Other cases of gorge formation

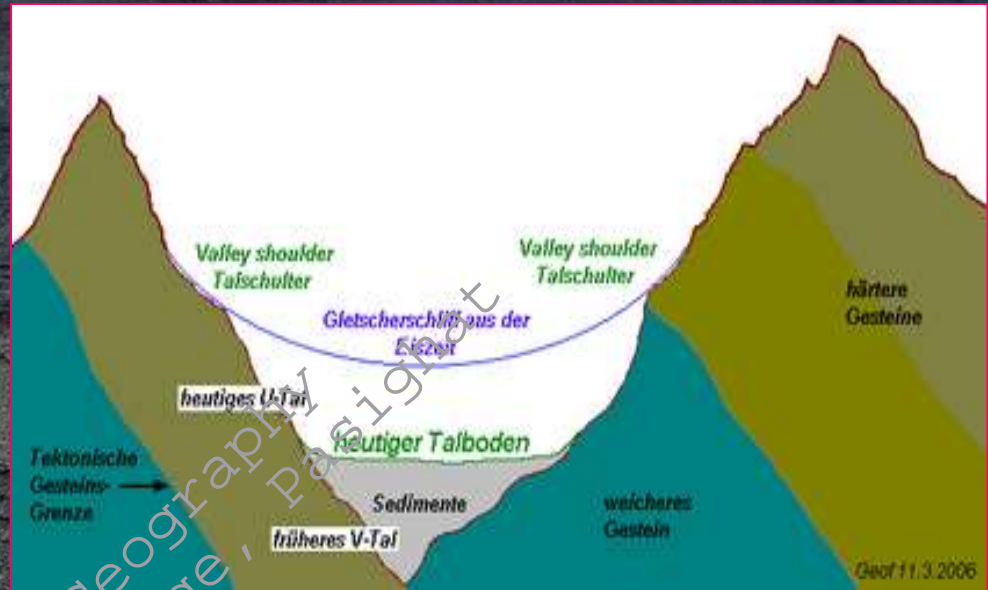
Gorges are also formed where:

- a river flows along a line of weakness.
- a river maintains its course across a landscape which is slowly being uplifted.
- a river cuts across a plateau composed of horizontal and alternate layers of hard



RIVER VALLEYS

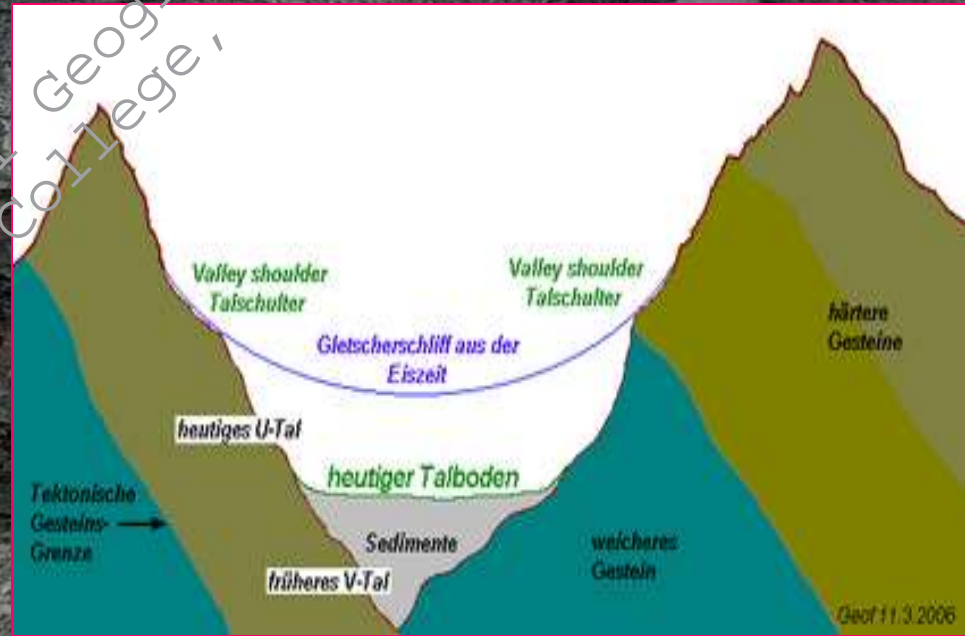
An elongated lowland between ranges of mountains, hills, or other uplands, often having a river or stream running along the bottom



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RIVER VALLEYS

It is typically a low-lying area of land, surrounded by higher areas such as mountains or hills. It can also be seen as a path between two mountains, or a depression in a single mountain.



POTHOLES

- Holes scoured into bedrock by swirling water/sediments
- Abrasion by sediment which enters a depression; bedrock scoured by swirling sediment
- Water able to erode due to power associated with velocity and cavitation; eddies



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STREAM TERRACES

- ❖ These are bench like ledges or flat surfaces that occur on the sides of many river valley
- ❖ From a distance they may appear as successions of several steps of big natural staircase rising up the river bed

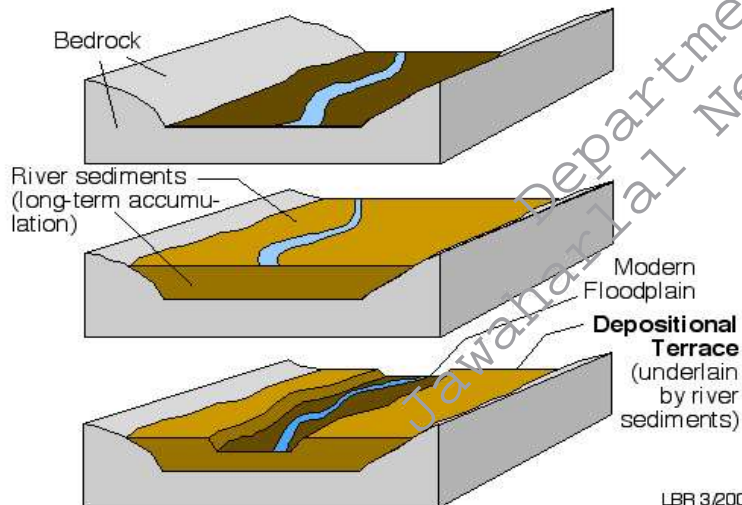
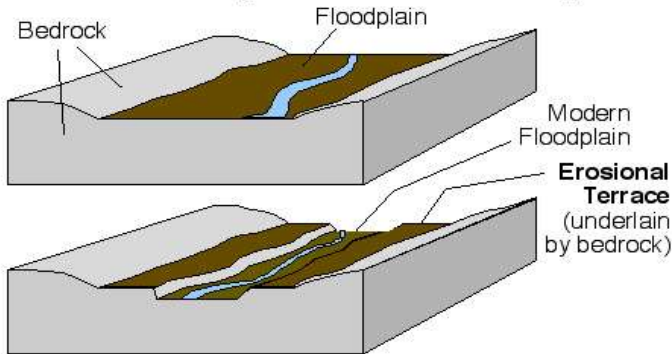


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STREAM TERRACES

Stream terraces are features, often floodplains, left behind from periods when a stream was flowing at a higher elevation and has downt to a lower elevation. Stream terraces often appear as plateaus on existing valley walls and indicate former elevations.

Terraces: abandoned floodplains that formed when a river flowed at a higher level than it does today.



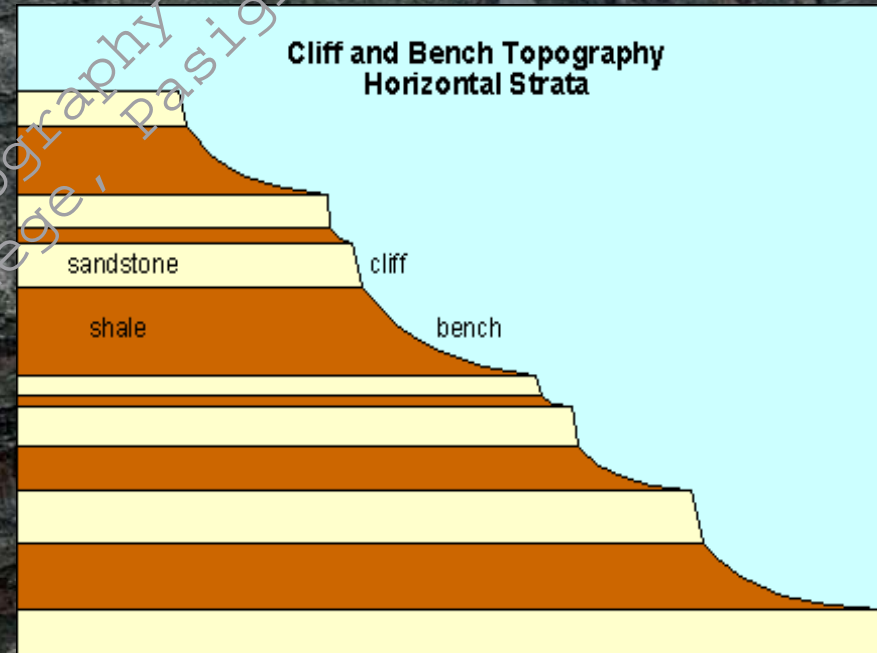
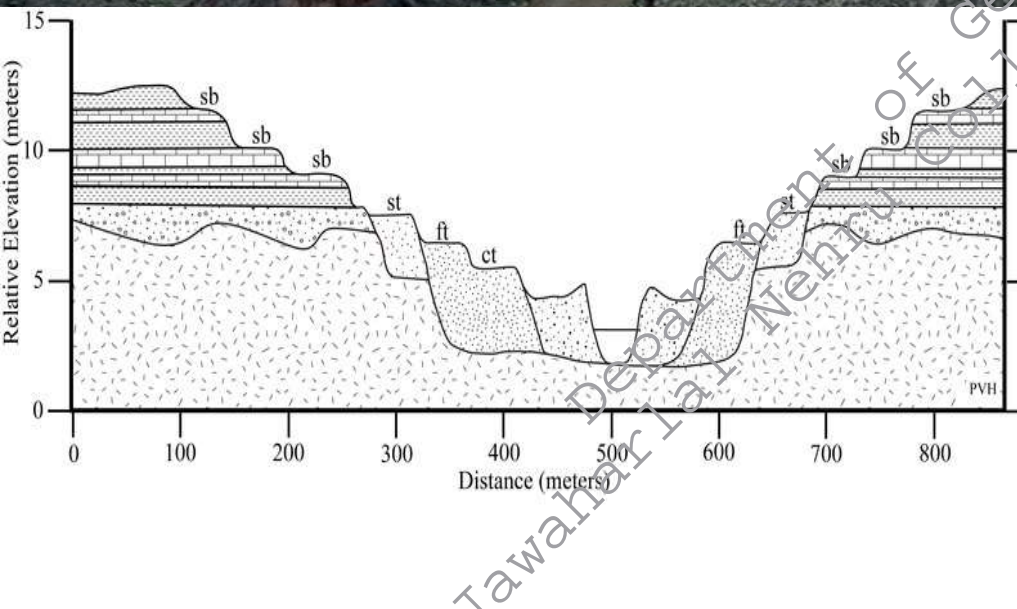
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STRUCTURAL BENCHES

- ✓ Step like sequence of geomorphic surfaces
- ✓ Differential erosion of alternately arranged hard and soft rocks forming step-like valleys known as structural benches



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RIVER MEANDERS

❖ Bending in the course of a river

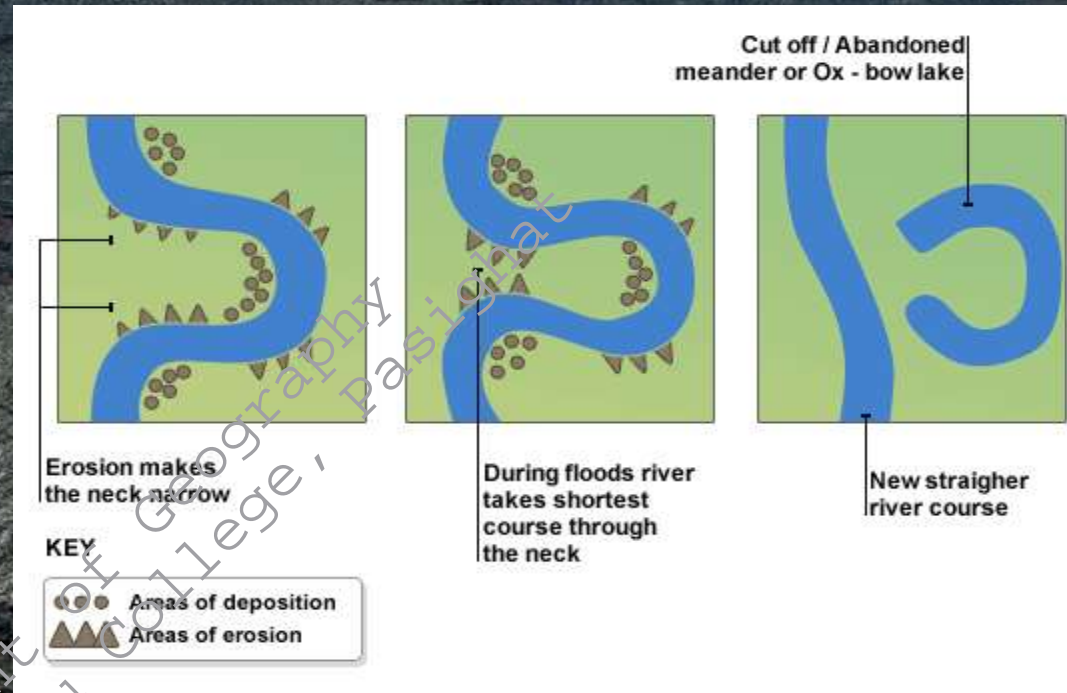


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OXBOW LAKES

❖ Lakes formed due to impounding of water in the abandoned meander loops



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FLUVIAL DEPOSITIONAL PROCESSES

The deposition of load carried by the streams is affected by a variety of factors:

- ❖ decrease in channel gradient,
- ❖ spreading of stream water over larger area,
- ❖ obstructions in channel flow,
- ❖ decrease in the volume and discharge of water,
- ❖ decrease in the velocity of streams,
- ❖ increase in load.

FLUVIAL DEPOSITIONAL LANDFORMS

- Alluvial fans and Cones
- Natural Levees
- Flood Plain
- Channel and Sand bars
- Delta

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ALLUVIAL FANS AND CONES

- ❑ Alluvial fans are fan-shaped deposits of water-transported material (alluvium)
- ❑ Alluvial fans have gentler slopes than the cones



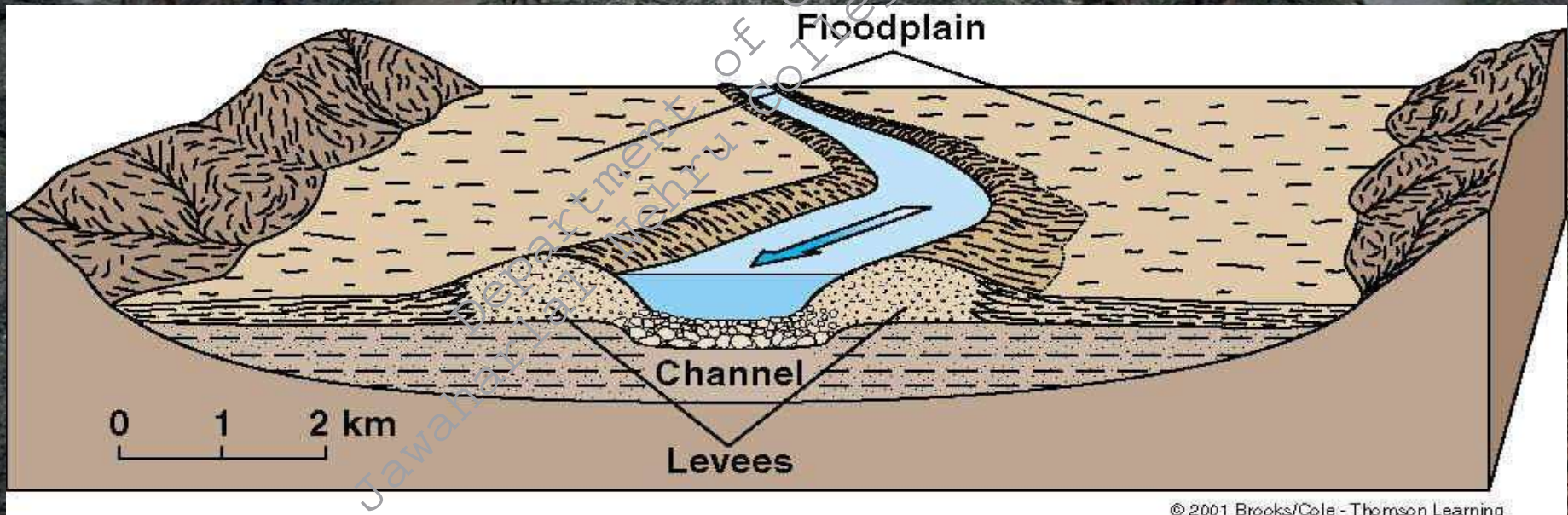
An **Alluvial Fan** is a fan- or cone-shaped deposit of sediment built up by river streams.



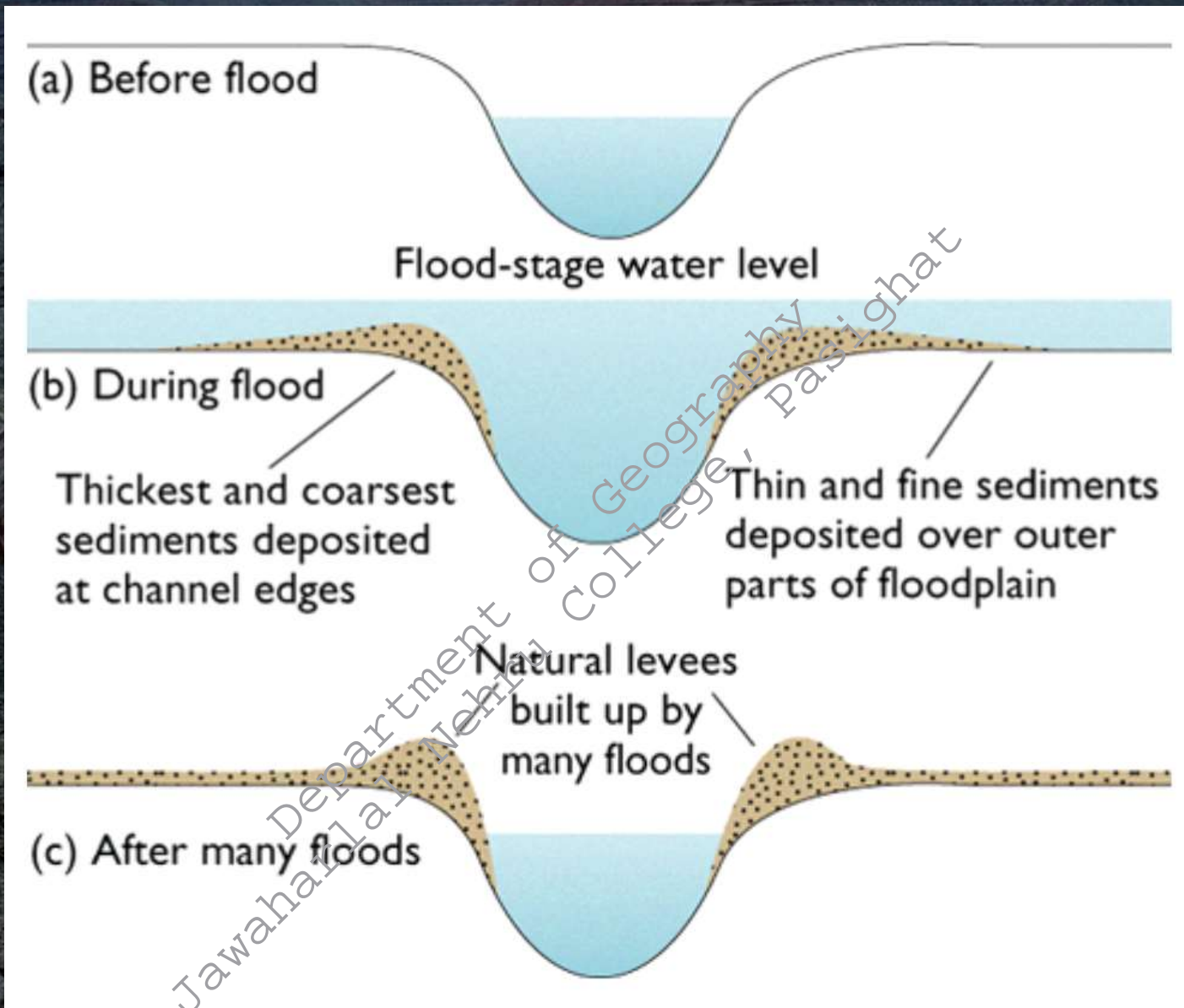
Alluvial Fans - Brodeur Peninsula, Baffin Island, Canada

NATURAL LEVEES

- An embankment of silt and sand built up by a stream along both its sides
- Narrow belt of ridges of low height along the river banks
- Formed due to deposition of sediments during flood periods when the water overtops the river banks and spreads over adjoining flood plains
- Not all the streams build natural levees

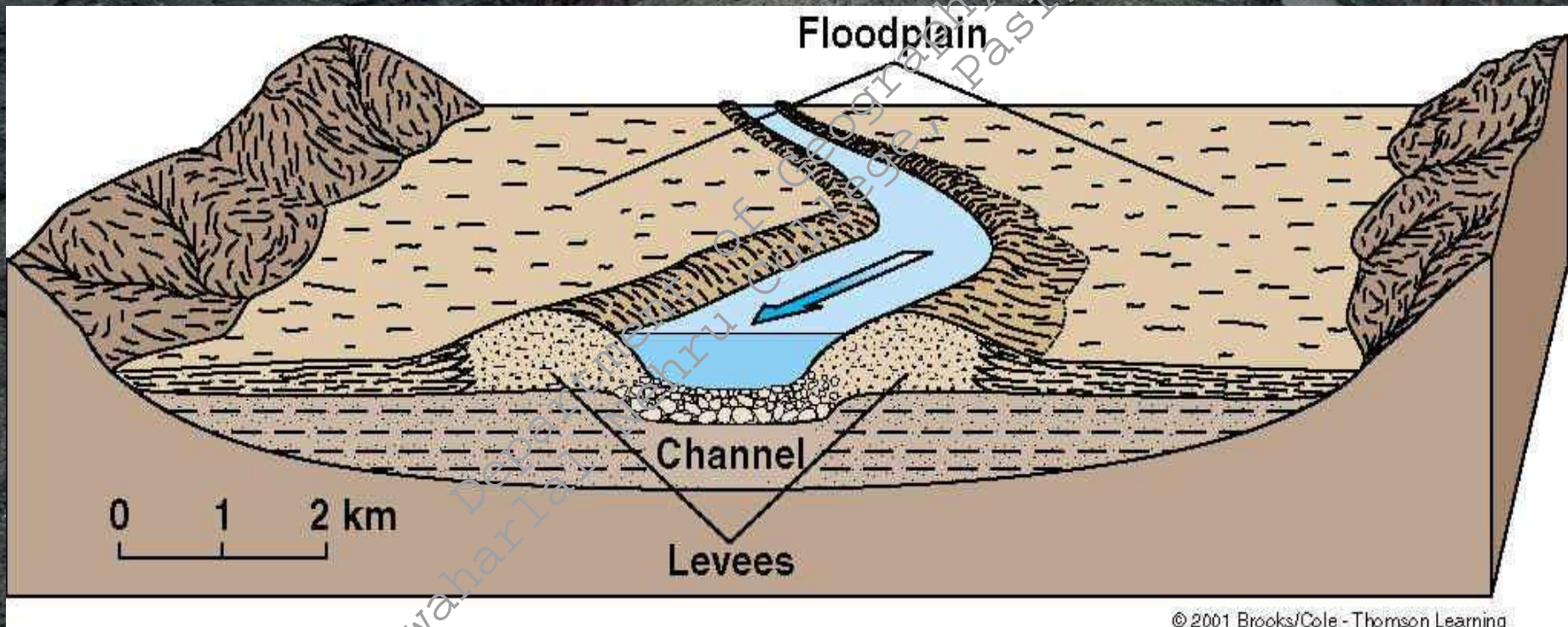


Natural Levees contd...



FLOOD PLAIN

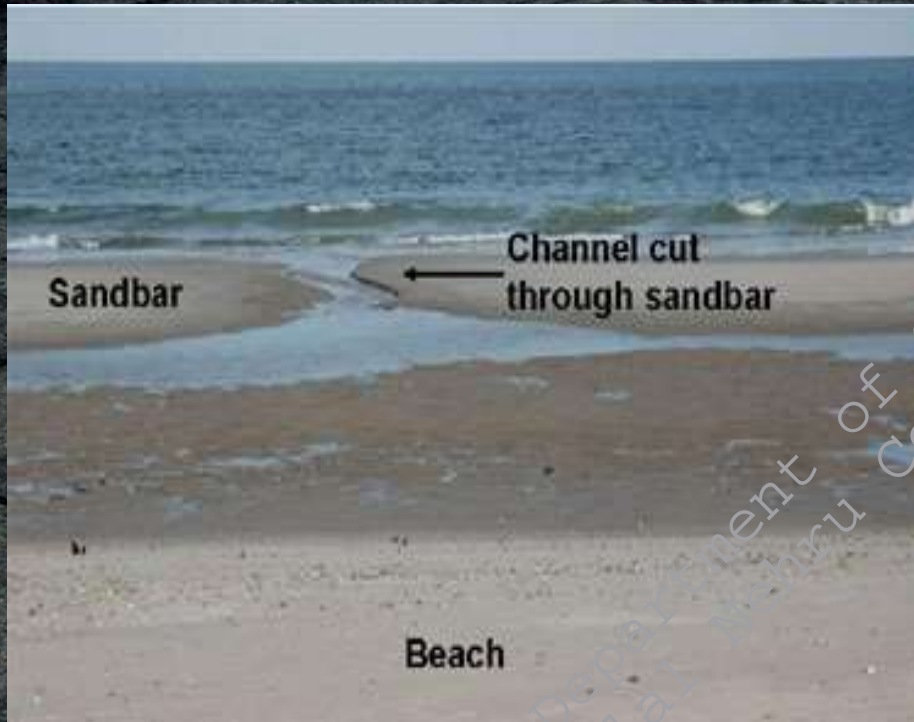
- An area of low, flat land along a stream or river, formed mainly of river sediments and is subject to flooding



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CHANNEL AND SAND BARS

- ❖ An elongate accumulation of sand, lying parallel to the shore
- ❖ An elevated region of sediment that has been deposited by the flow



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DELTA

- The depositional feature of almost triangular shape at the mouth of a river debouching either in a lake or a sea is called delta



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DELTA



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Thank You

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