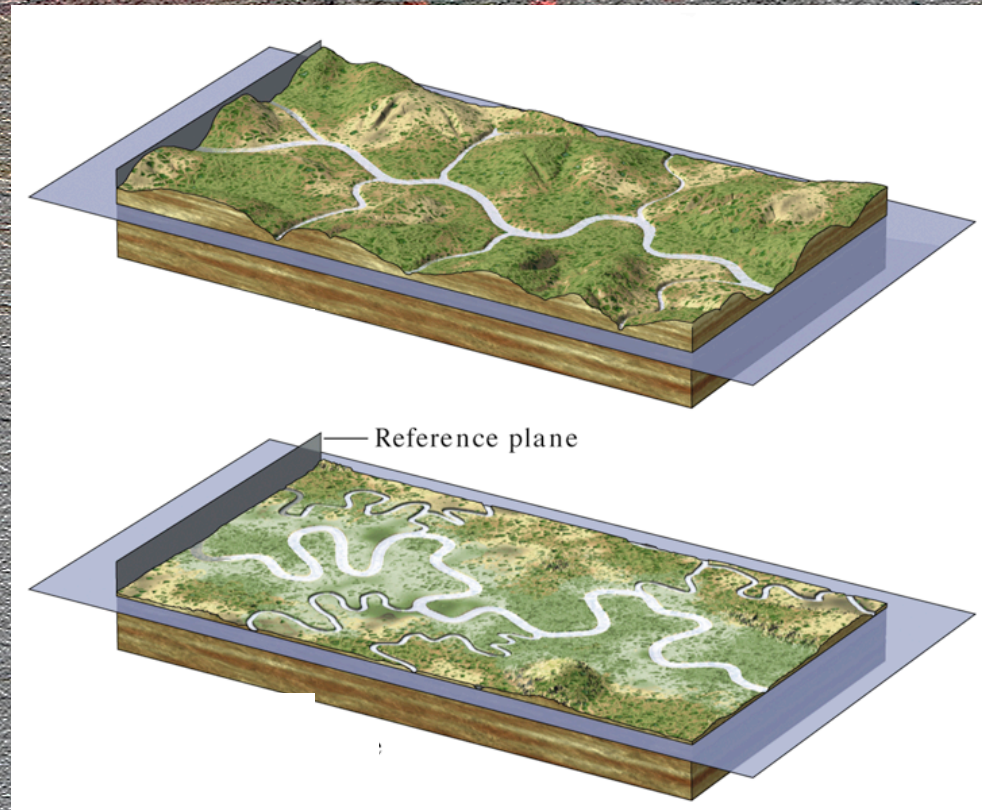


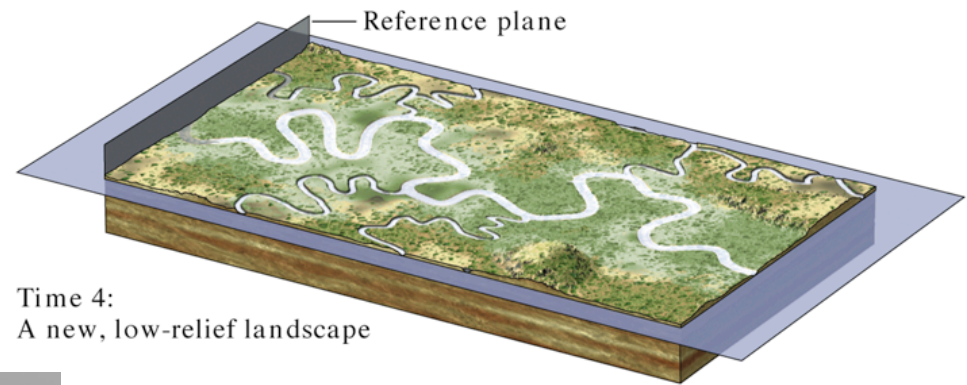
Rivers in Low-Gradient Areas

- ✧ rivers in high-gradient areas tend to flow straight
- ✧ rivers in low-gradient areas tend to meander



The Mississippi River

Mississippi River



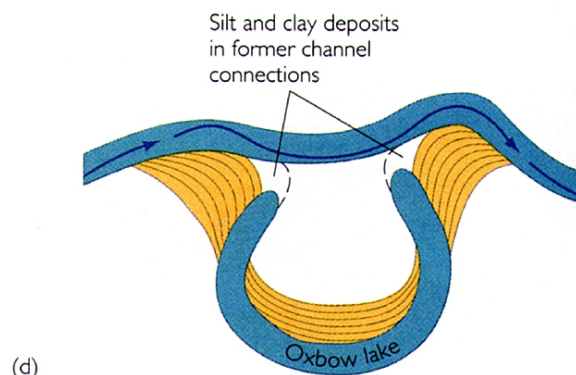
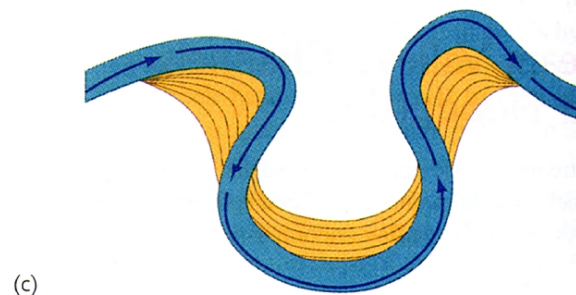
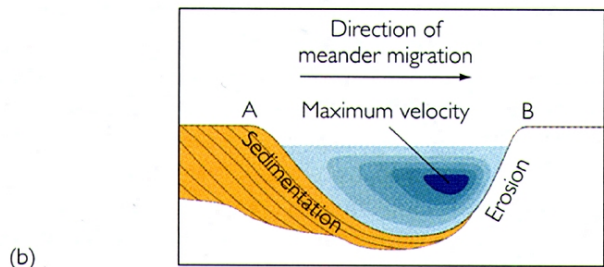
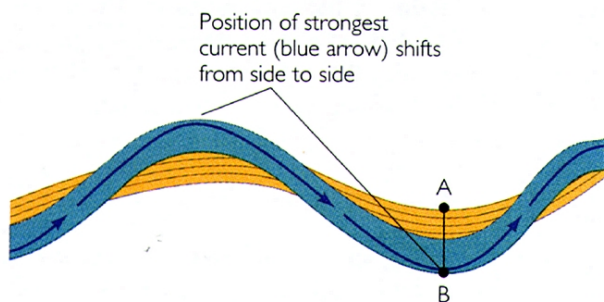
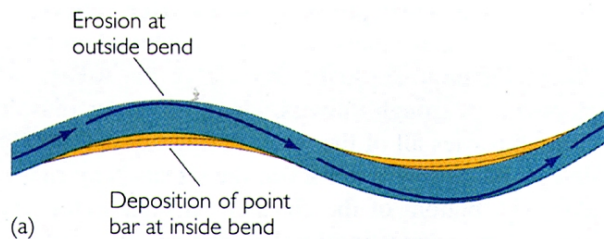
- elevation spring: 450 m
- length: 3766 km
- with Missouri: 6010 km
- 4th-longest river system
- one of world's largest river deltas

The Lower Mississippi River



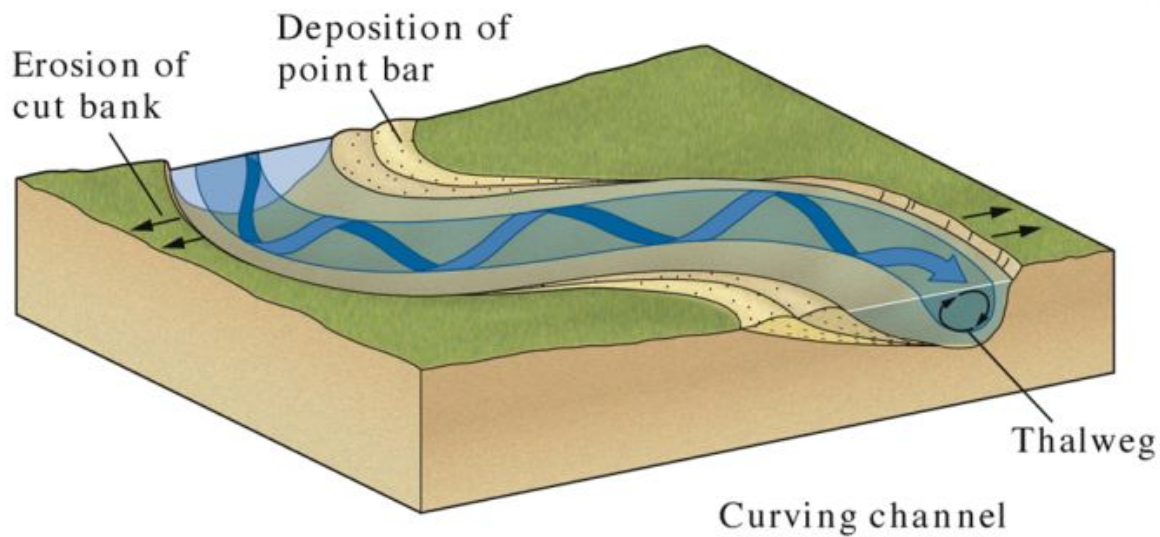
The Formation of Meanders

- ✧ erosion at outside bend
 - ✧ deposition of sediments at inside bend
- > meander loop -----> Oxbow lake

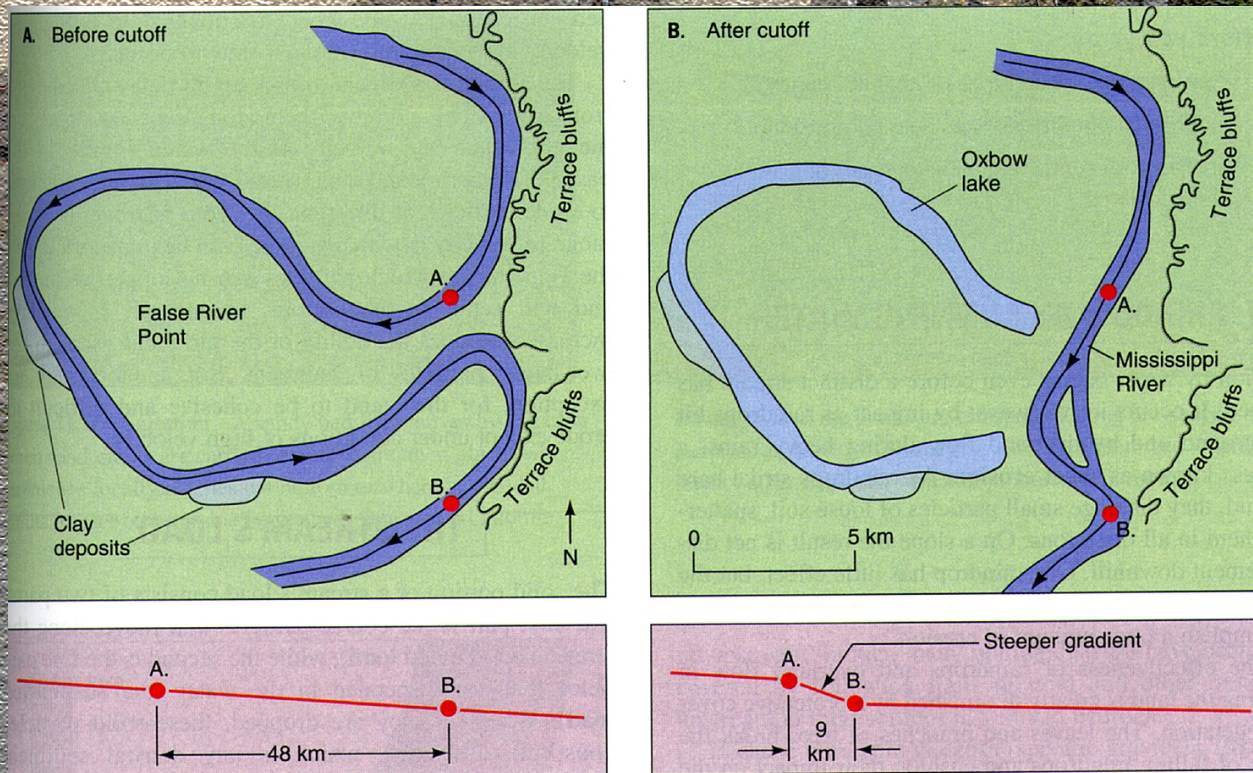


The Asymmetric of the Cross-Section

- ✧ maximum flow velocity near outer bank -> erosion
- ✧ low flow velocity near inner bank -> deposition



Consequences of Cutting a Meander



- ✧ path length decreases
 - > gradient increases -> more erosion
- ✧ increased flow speed at B
- ✧ more load -> chance of flooding downstream

The SIO Beach as a Sandbox Experiment



The SIO Beach as a Sandbox Experiment



The SIO Beach as a Sandbox Experiment

OUTER BANK:

steep cliffs
erosion
cliff collapse/
slumping

INNER BANK:

gentle slope
deposition
flooding

