

Features of a Meandering Stream

1. In a straight stream channel, where does the water have the maximum velocity?

2. In a straight stream channel, where does the water have the minimum velocity?
Explain your answer.

3. What is a meander?

4. In a meandering stream channel, where does the water have the maximum and minimum velocity?

5. In a meandering stream channel, where is deposition dominant?

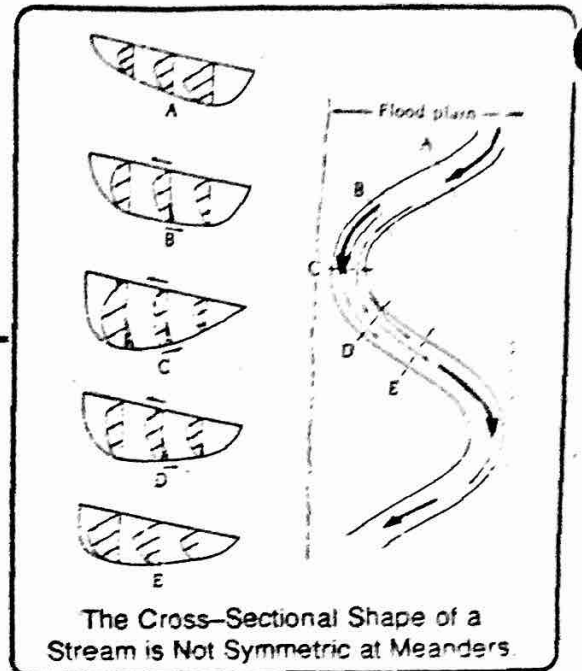
6. What is the narrow pathway in which stream water flows?

7. What holds a stream's moving water within its narrow pathway?

8. How does an oxbow lake form?

Stream bends are known as meanders.

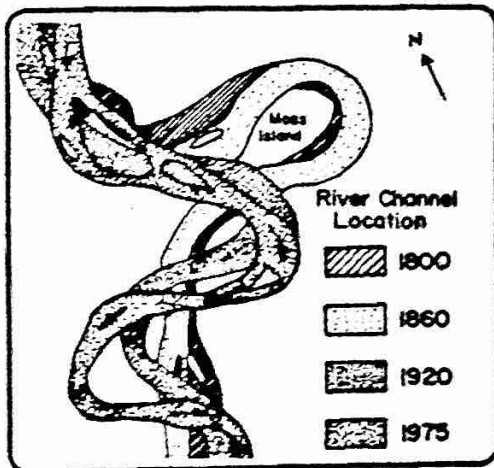
At a meander, the force of inertia swings the fastest flowing water to the outside of the bend. This is the same force that you feel if you are riding in a car that quickly turns a corner, pushing your body toward one side. This difference in speed causes erosion on the outside of the stream bend, and deposition along the inside. It also causes the stream to be deeper near the outside of a meander, and shallower along the inside, where the water flows more slowly.



The Cross-Sectional Shape of a Stream is Not Symmetric at Meanders

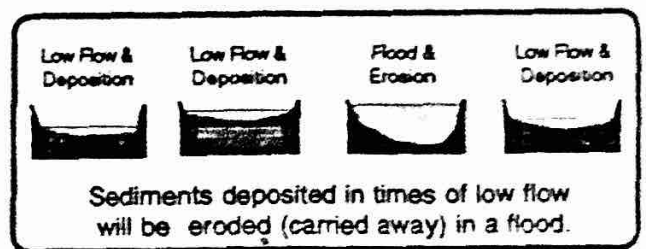
9. What is a meander? _____
10. Why is the current the fastest on the outside of a meander?

11. Erosion usually dominates along the _____ of a meander, while along the _____ inside of the same meander _____ usually dominates.



Continuing erosion on the outsides of the meanders and deposition on the insides cause the meanders to move slowly downstream through time. If we could see this motion sped up about a million times, it might look like the motion of a slithering snake. The diagram to the left shows the changing path of a section of the lower Mississippi River over a period of 160 years. Where a political boundary follows a meandering river, confusion may result as the river changes its course through time.

12. What two processes cause meandering rivers to change their courses through time?



Changes in the discharge of a stream result in changes in the velocity of the water. Sediment deposited in the stream channel in time of low water may be washed away in a flood.

When the continental glaciers that covered most of New York State about 20 000 years ago melted, a great flood scoured the channel of the Hudson River. More recently, thick layers of sediments have come to rest along the river bottom.

13. What would it take to move these sediments? _____
14. Why do most rivers flow faster as they flow downstream? _____
15. Describe the difference between a cut bank and point bar. _____