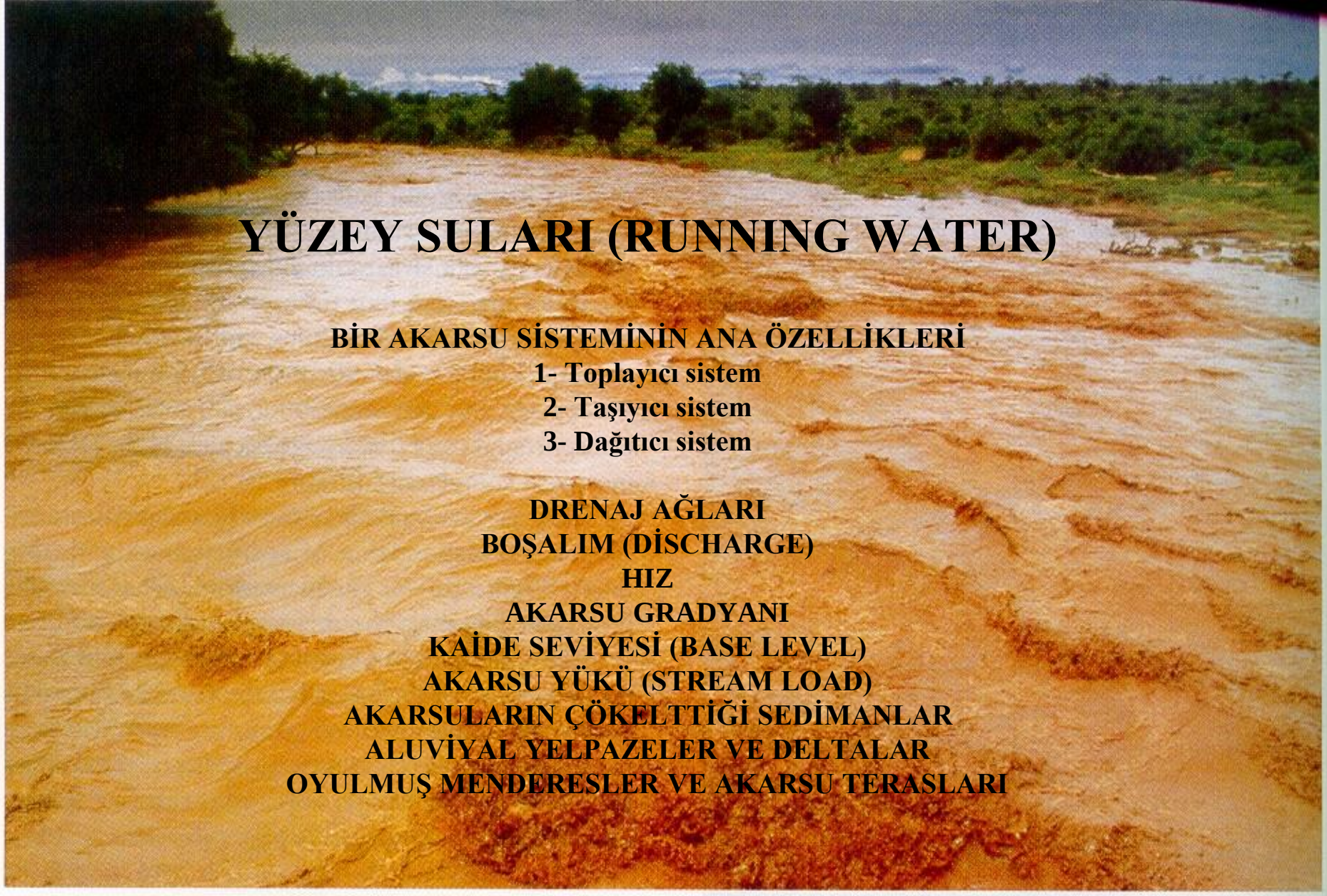


YÜZEY SULARI (RUNNING WATER)

BİR AKARSU SİSTEMİNİN ANA ÖZELLİKLERİ
1- Toplayıcı sistem
2- Taşıyıcı sistem
3- Dağıtıcı sistem

DRENAJ AĞLARI
BOŞALIM (DİSCHARGE)
HIZ
AKARSU GRADYANI
KAİDE SEVİYESİ (BASE LEVEL)
AKARSU YÜKÜ (STREAM LOAD)
AKARSULARIN ÇÖKELTTİĞİ SEDİMANLAR
ALUVİYAL YELPAZELER VE DELTALAR
OYULMUŞ MENDERESLER VE AKARSU TERASLARI

Figure 10.13 During floods both capacity and competency increase. Therefore the greatest erosion and sediment transport occur during these high-water periods. Here we see the sediment-filled floodwaters of Kenya's Mara River. (Photo by Tim Davis/Tony Stone Images)

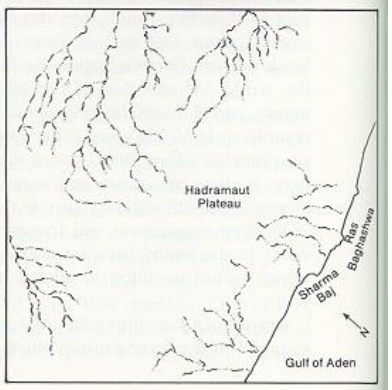
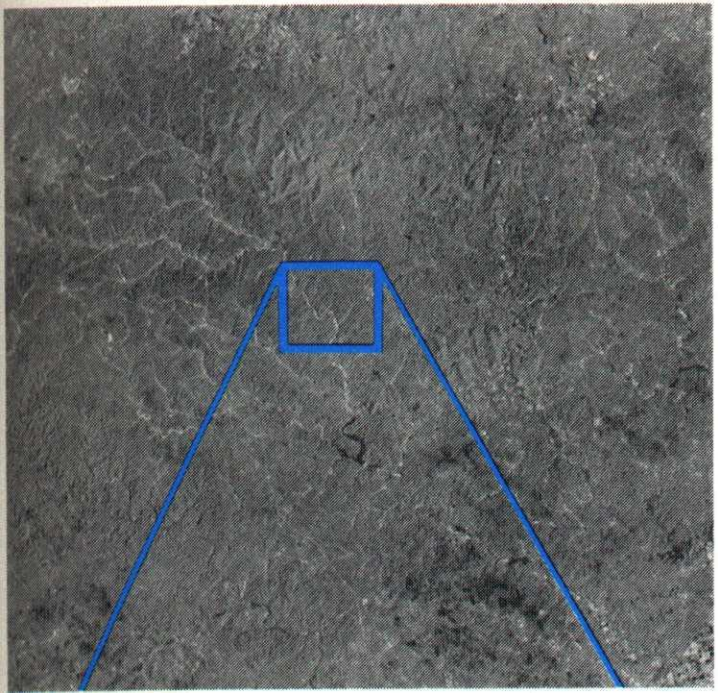
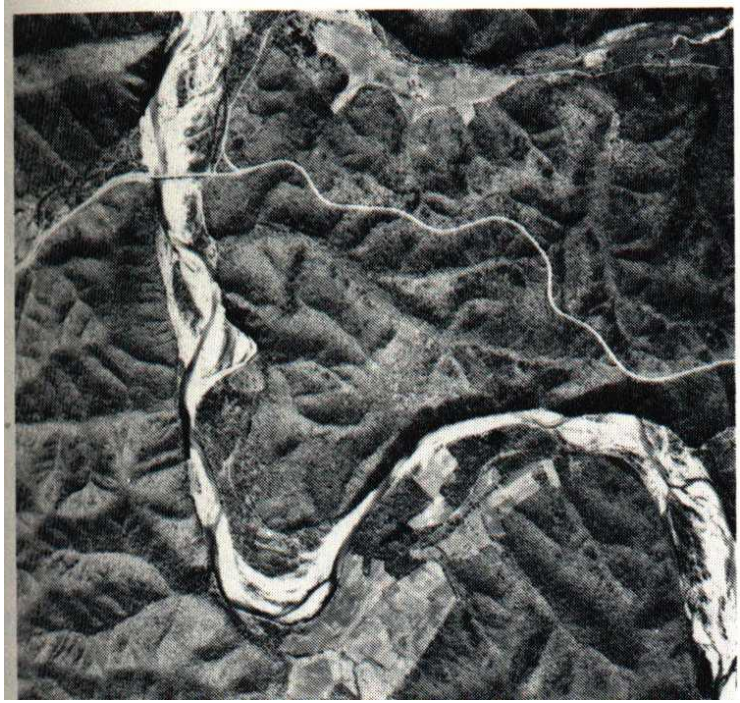
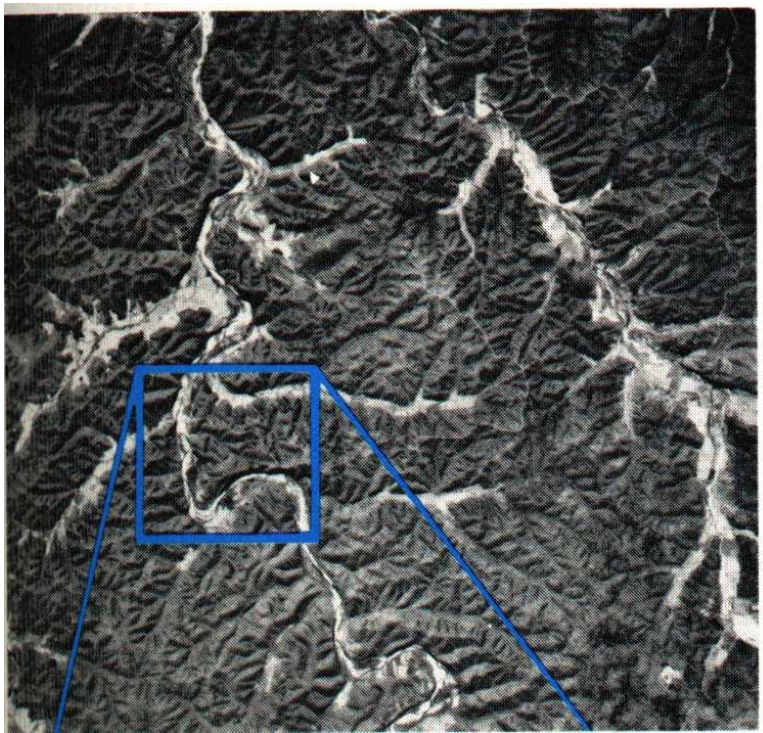


Figure 2.5
Drainage systems are a clear record of how surface runoff has sculptured the land. They testify to the magnitude of the Earth's hydrologic system, for few areas of the land are untouched by stream erosion. In this photograph of a desert region, details of the delicate network of tributaries are clearly shown. On the Moon, Mercury, and Mars, craters dominate the landscape, but on the continents of the Earth, stream valleys are the most abundant landform.







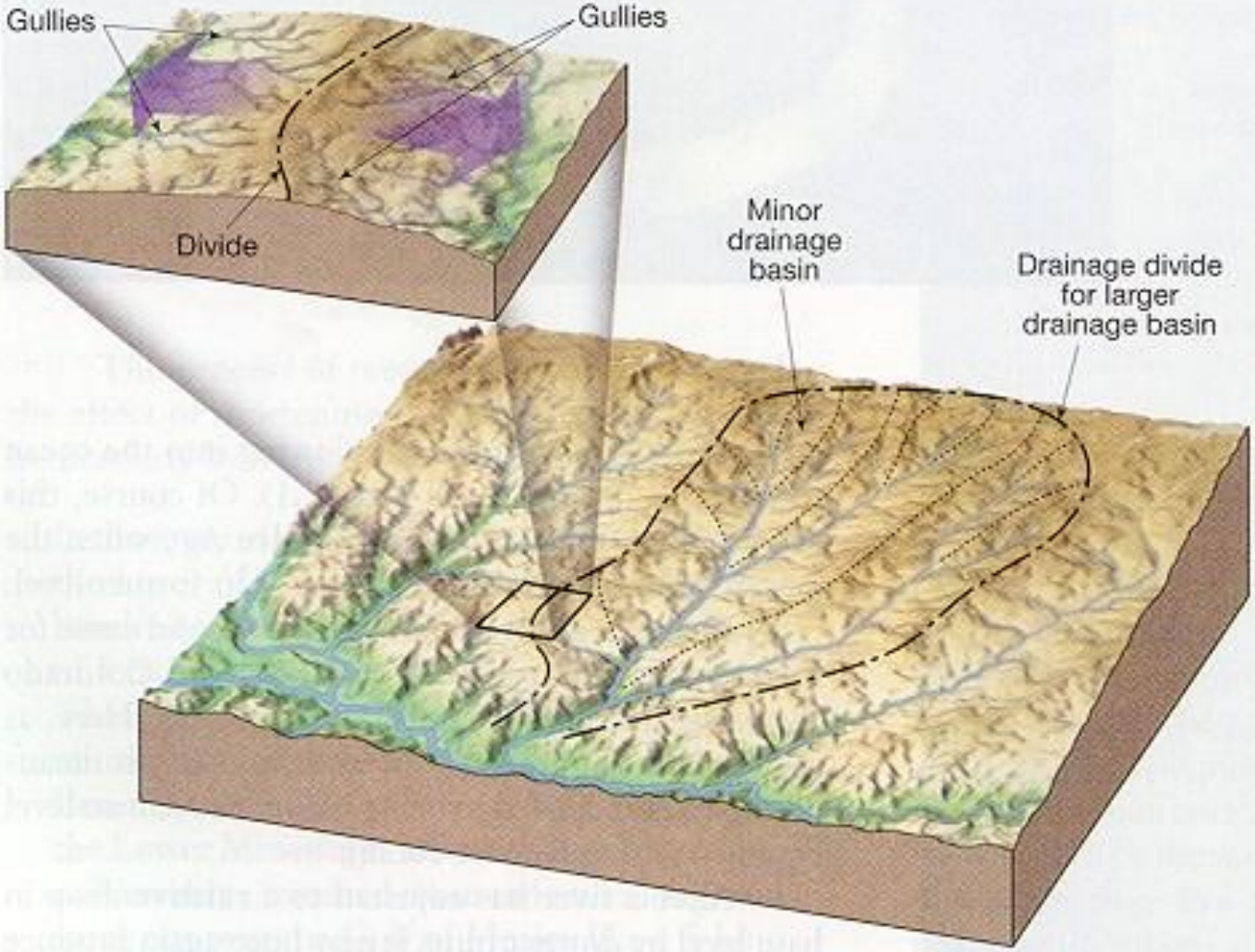


Figure 10.30 A *drainage basin* is the land area drained by a stream and its tributaries. *Divides* are the boundaries separating drainage basins.

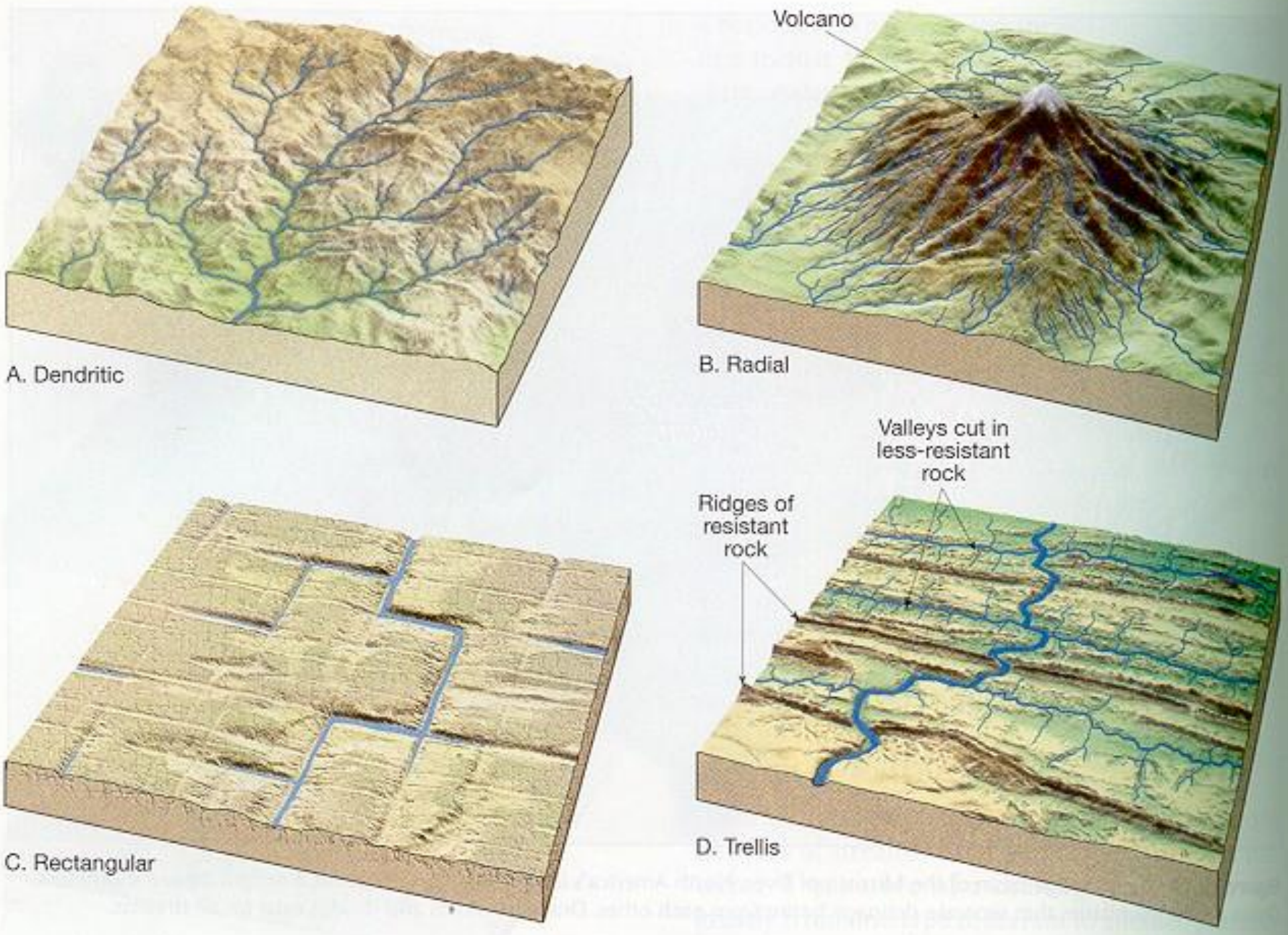


Figure 10.32 Drainage patterns. **A.** Dendritic. **B.** Radial. **C.** Rectangular. **D.** Trellis.

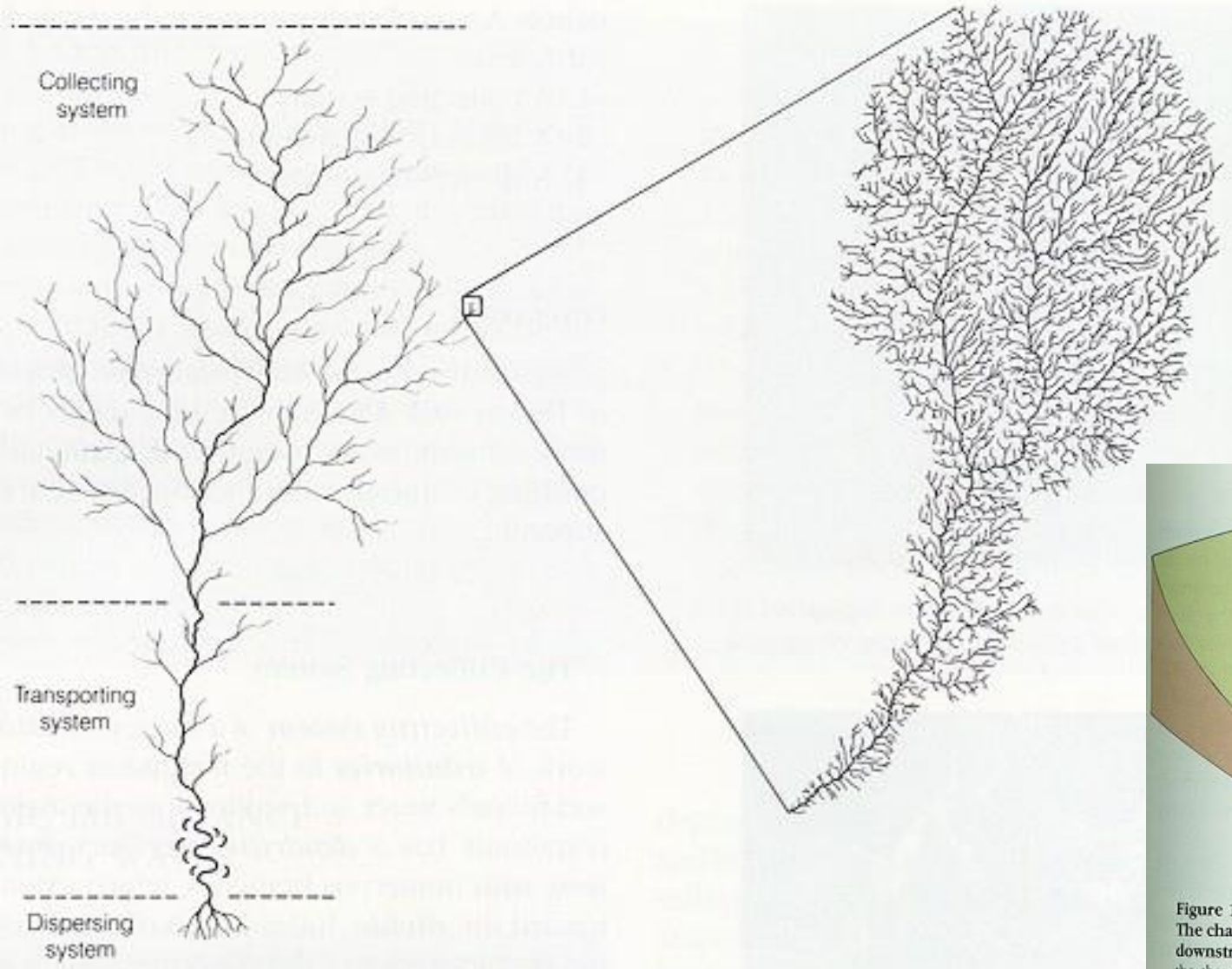


Figure 10.2
The major parts of a river system are characterized by different geologic processes. The tributar the headwaters constitute a subsystem that collects water and sediment and funnels them into a main trunk stream. Erosion is dominant in this headwater area. The main trunk stream is a transporting subsystem. Both erosion and deposition can occur in this area. The lower end of the river is a dispersing subsystem, where most sediment is deposited in a delta or an alluvial fan, and water is dispersed into the ocean. Deposition is the dominant process in this part of the river.

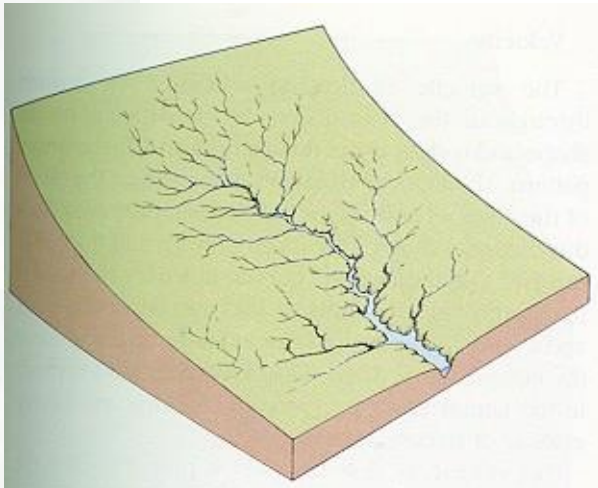
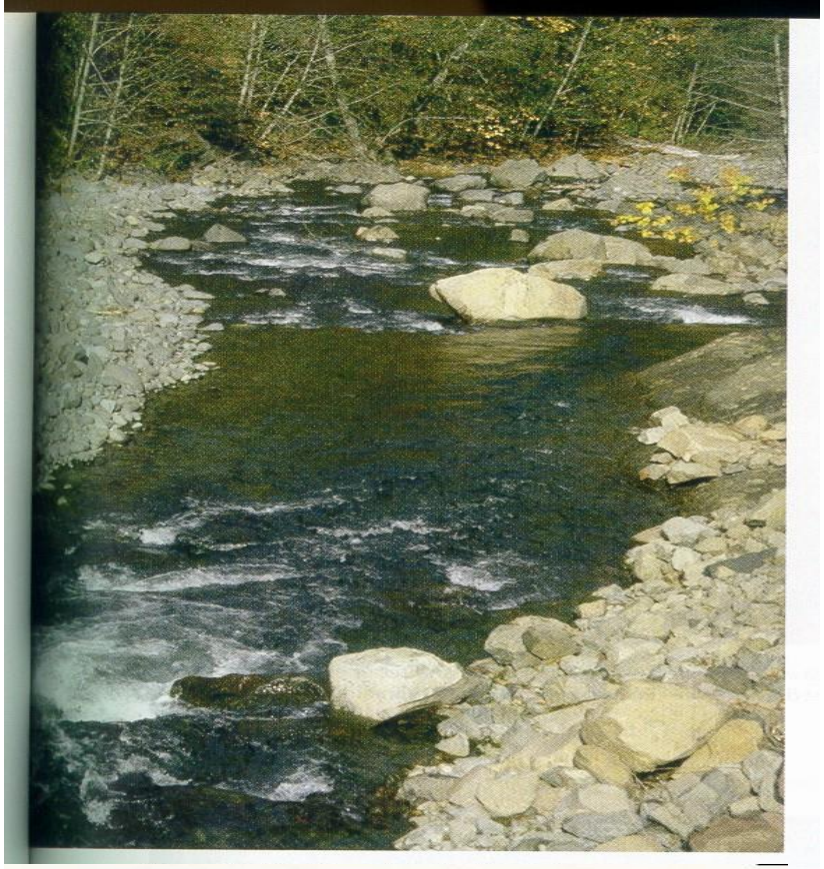
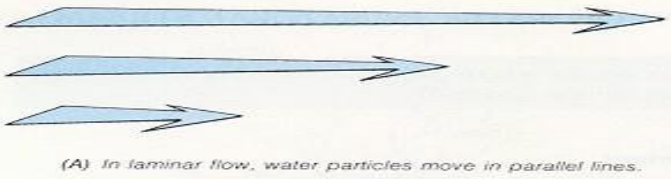
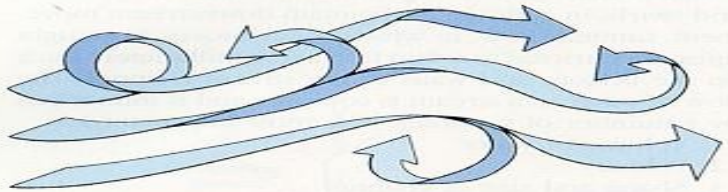


Figure 10.3
The characteristics of a river change systematically downstream. The gradient decreases downstream, and the channel becomes larger. Other downstream changes include an increase in the volume of water and an increase in the size of the valley through which the stream flows.



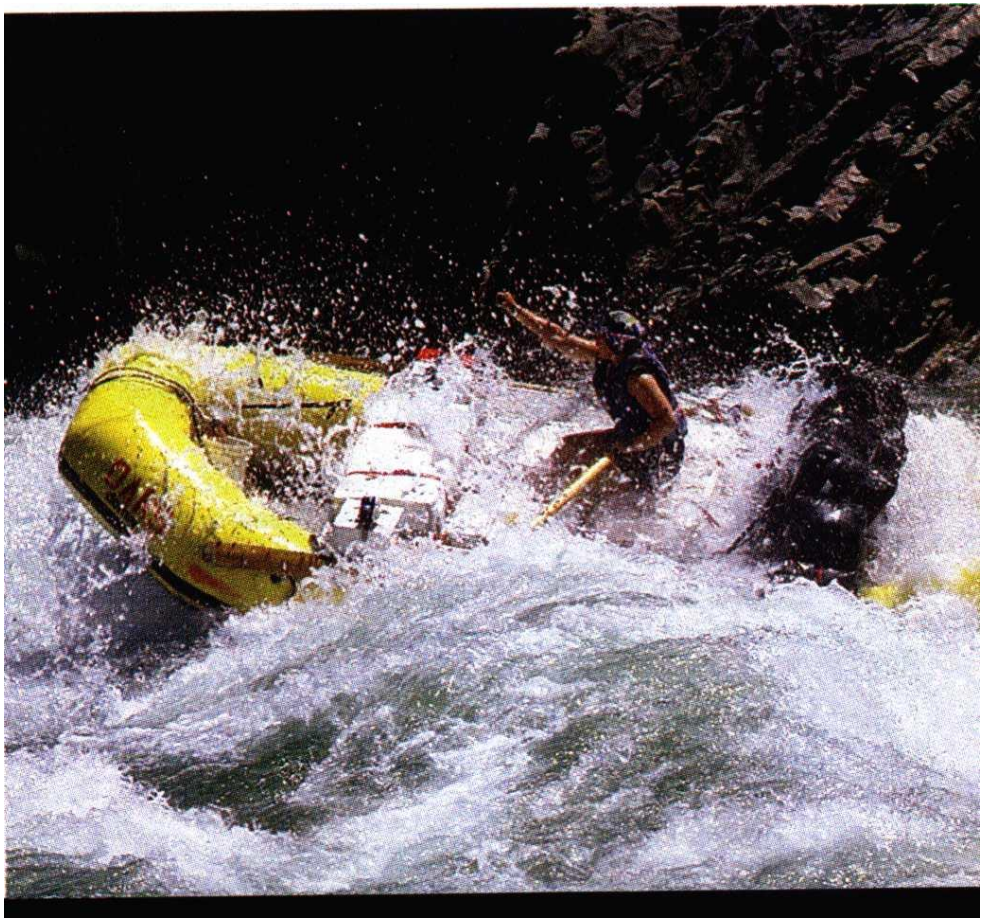


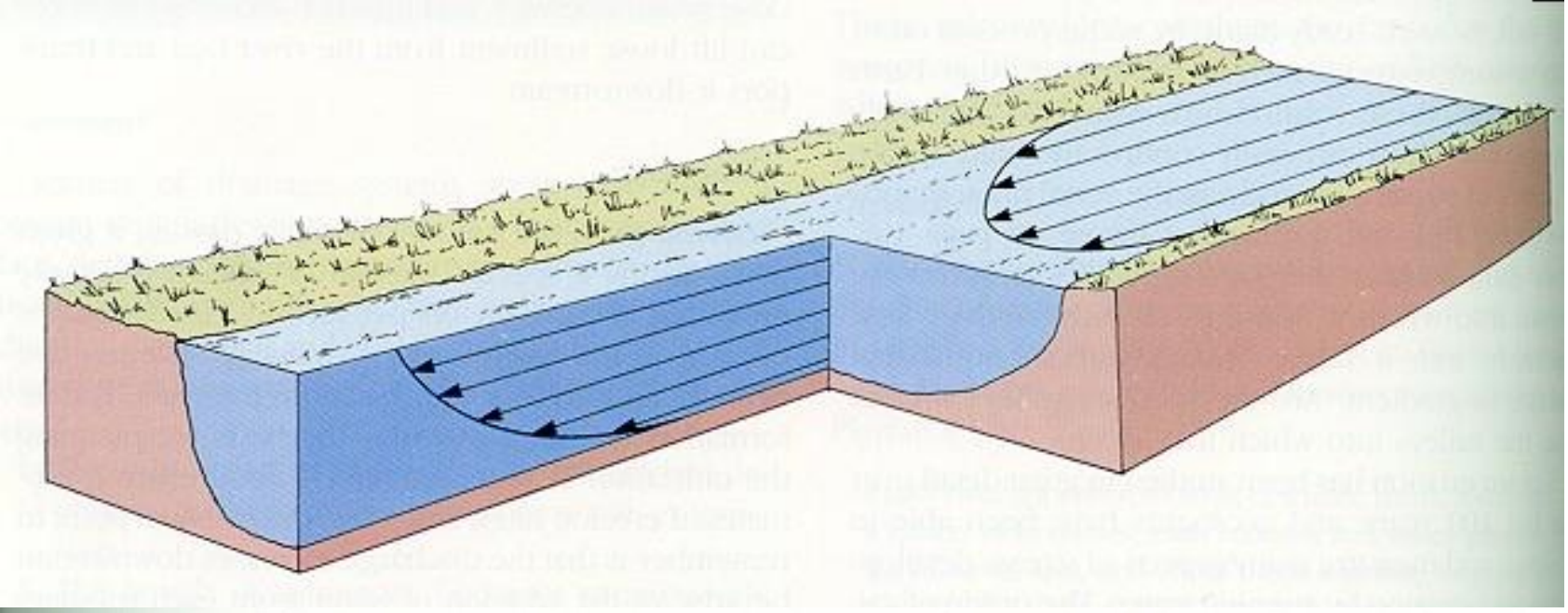
(A) In laminar flow, water particles move in parallel lines.



(B) In turbulent flow, many secondary eddies are superposed on the main stream flow.

Figure 10.4
Types of flow are illustrated by arrows.





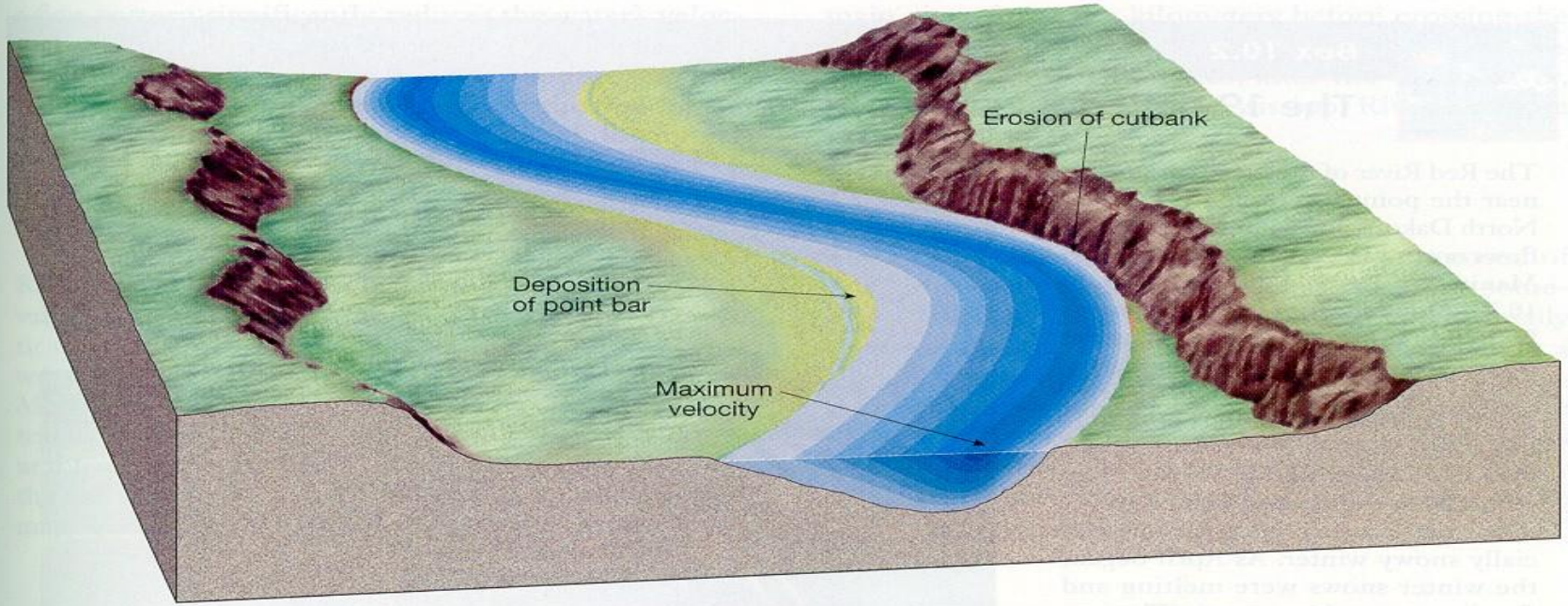


Figure 10.14 When a stream meanders, its zone of maximum speed shifts toward the outer bank. A point bar is deposited when the water on the inside of a meander slows. By eroding its outer bank and depositing material on the inside of the bend, a stream is able to shift its channel.

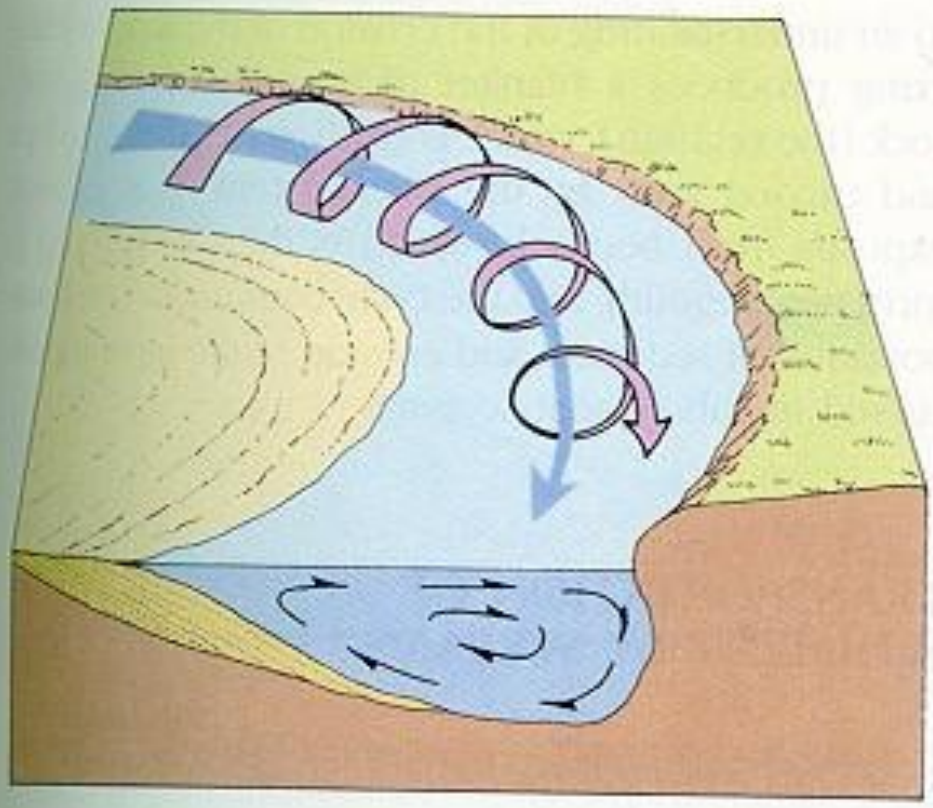


Figure 10.6(A)
Flow in a curved channel follows a corkscrew pattern. Water on the outside of the bend is forced to flow faster than that on the inside of the curve. This difference in velocity, together with normal frictional drag on the channel walls, produces a corkscrew flow pattern. As a result, erosion occurs on the outer bank, and deposition occurs on the inside of the bend. These processes produce an asymmetrical channel, which slowly migrates laterally.

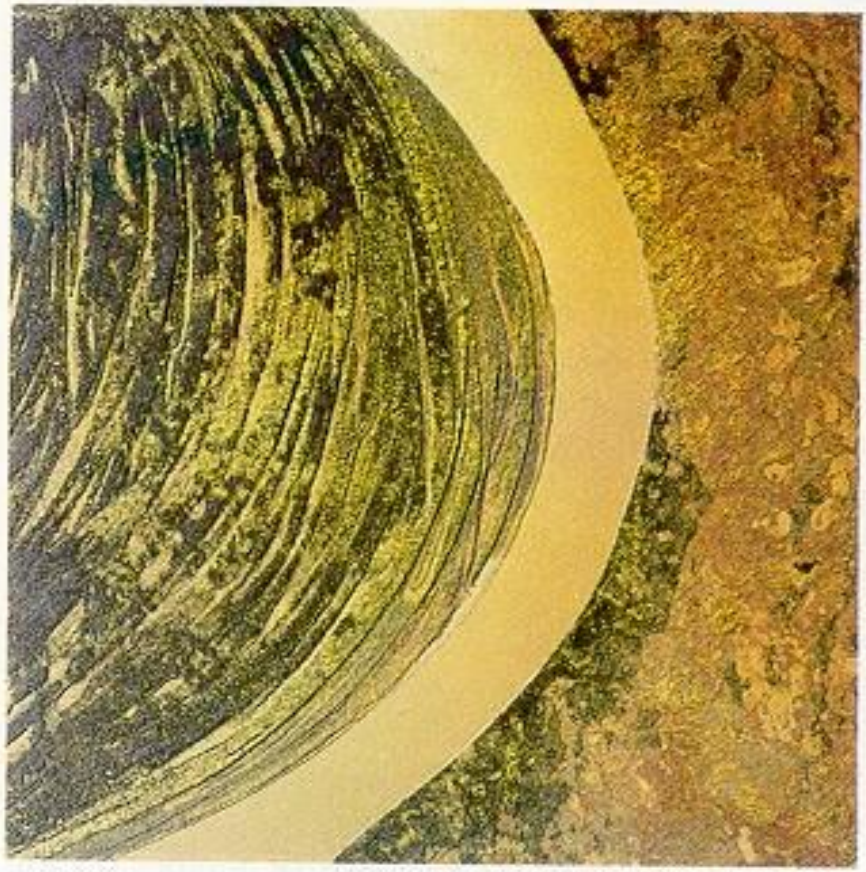
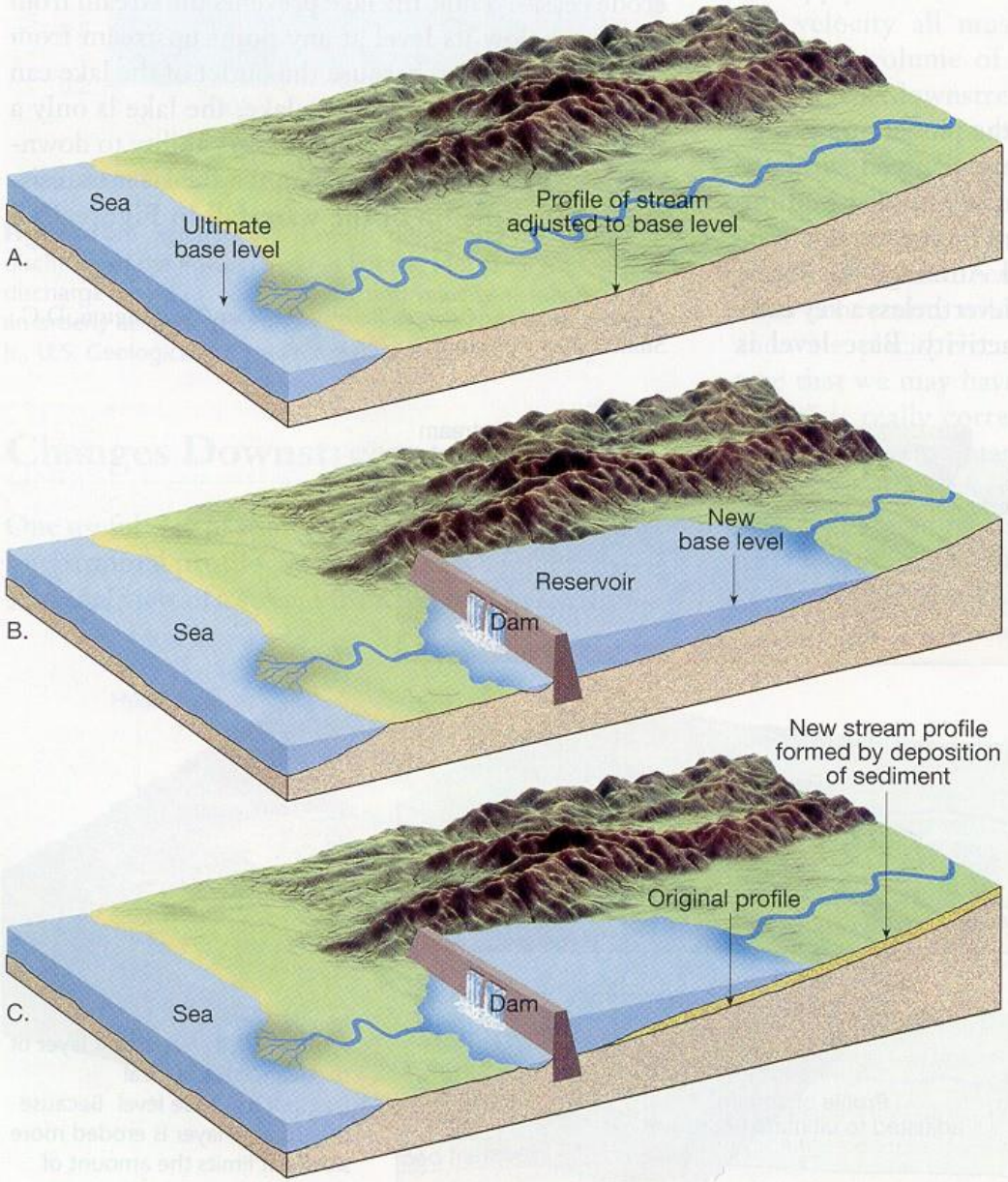
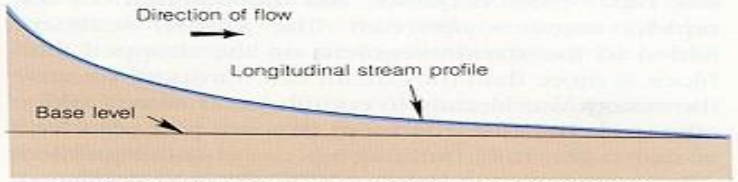
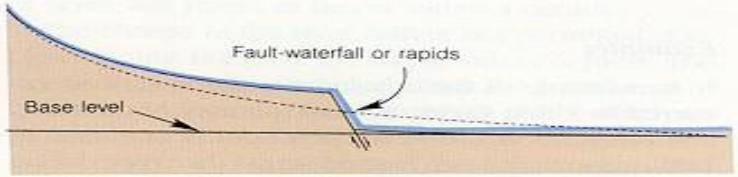


Figure 10.6(B)
Variations in stream flow, around a meander bend, in a river in eastern Canada. Note the sharp steep bank on the outside of the meander bend where velocity is greatest and erosion occurs. On the inside of the meander velocity is at a minimum and deposition occurs to form a point bar. Note the scars on the point bar which mark the previous position of the stream channel.

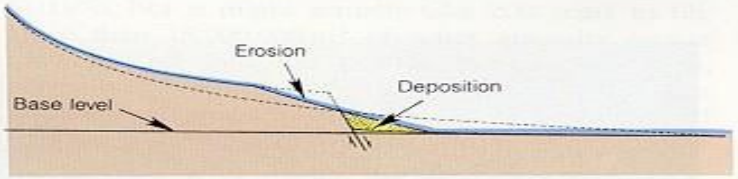




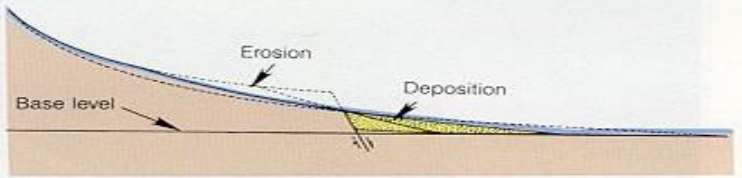
(A) Initially, when the stream profile is at equilibrium, the velocity, load, gradient, and volume of water are in balance. Neither erosion nor deposition occurs.



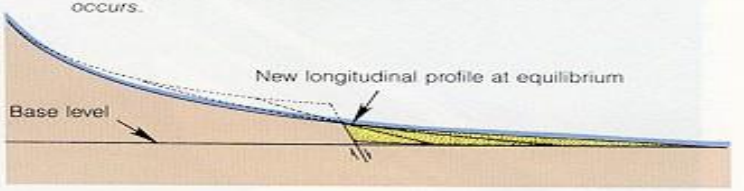
(B) Faulting disrupts equilibrium by decreasing the gradient downstream and increasing the gradient at the fault line.



(C) Erosion proceeds upstream from the fault, and deposition occurs downstream.



(D) Erosion and deposition continue to develop a new stream profile at which the velocity, load, gradient, and volume of water will be in balance so that neither erosion nor deposition occurs.



(E) A new profile of equilibrium, in which neither erosion nor deposition occurs, is eventually reestablished.

Figure 10.12
Adjustments of a stream to reestablish equilibrium are illustrated by profile changes after disruption by faulting.

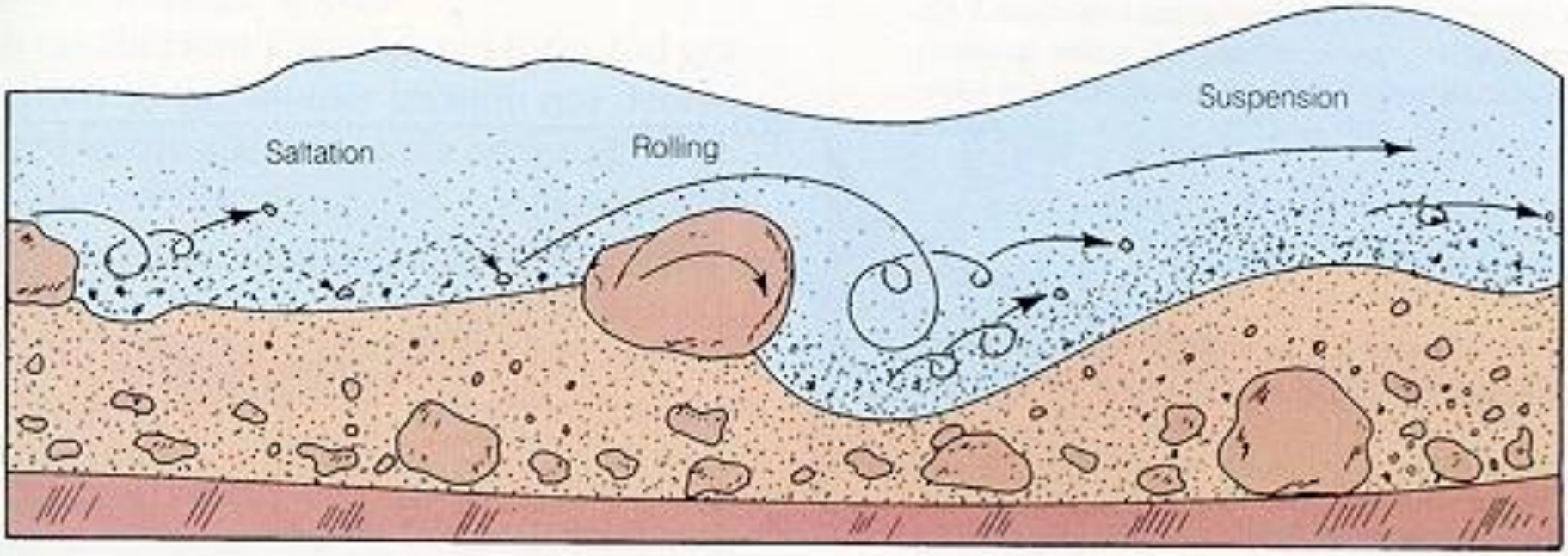


Figure 10.9
Movement of the bed load in a stream is accomplished in a variety of ways. Particles that are too large to remain in suspension are moved by sliding, rolling, and saltation. Increases in discharge, due to heavy rainfall or spring snowmelt, can flush out all of the loose sand and gravel, so that the bedrock is eroded by abrasion.

Figure 10.27 Oxbow lakes occupy abandoned meanders. As they fill with sediment, oxbow lakes gradually become swampy meander scars. Aerial view of oxbow lake created by the meandering Green River near Bronx, Wyoming. (Photo by Michael Collier)

Figure 10.15 Braided stream choked with sediment near the edge of a melting glacier. (Photo by Bradford Washburn)

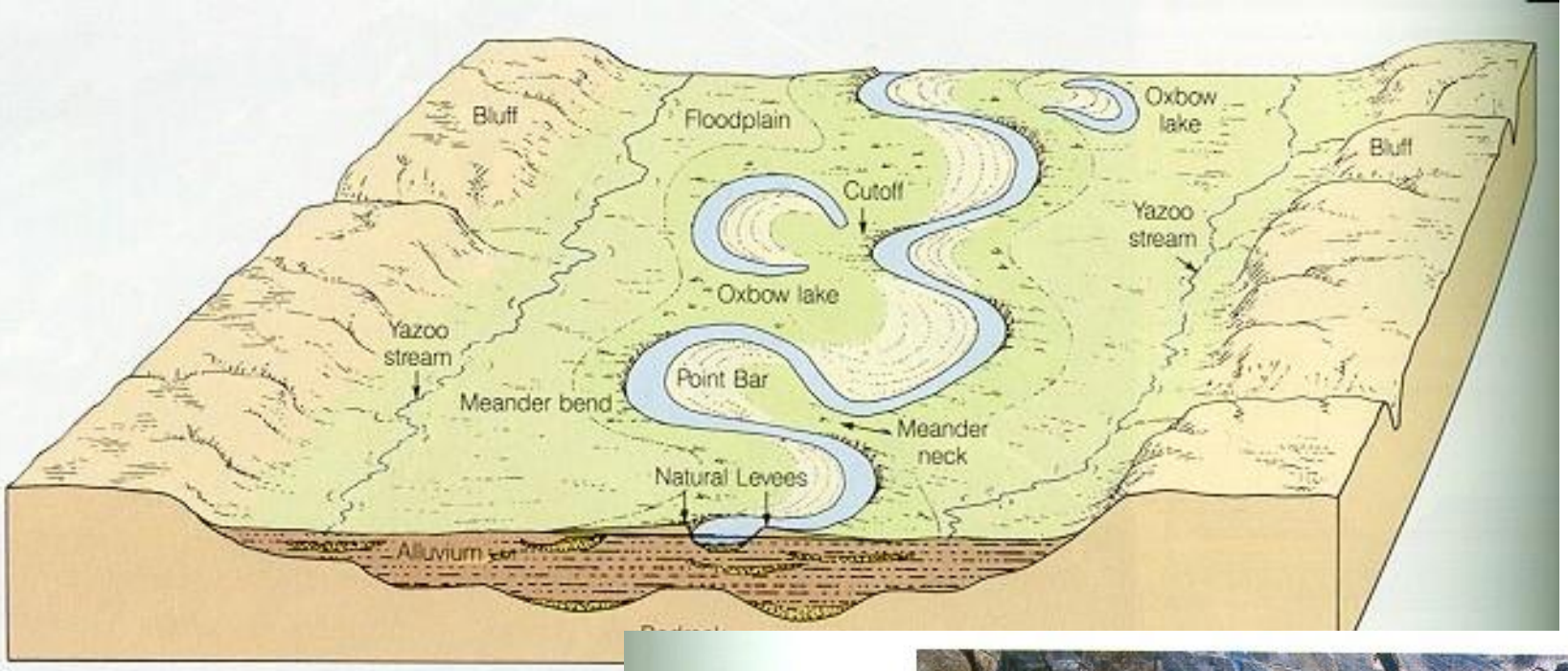
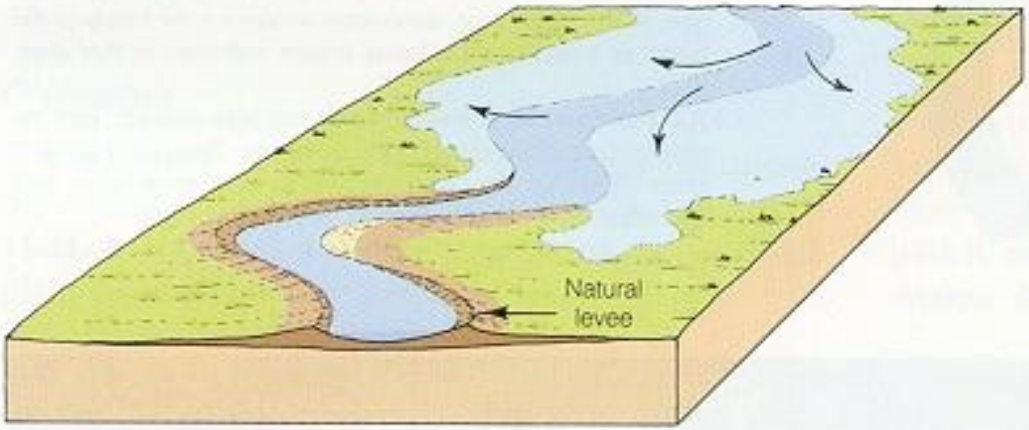


Figure 11.21
The major features of a floodplain
swamps, and streams. A stream flowing
sediment on the inside curve to form a p
off, to form an oxbow lake. Natural levee
lower surfaces of the floodplain. Yazoo s
natural levees, and thus flow parallel t
retreat continues to widen the low vall

Figure 11.23
Floodplain features include meander bends, point bars, natural levees, oxbow lakes, and backswamps.



(A) Block diagram showing how natural levees are formed.

Figure 11.24
Natural levees are wedge-shaped deposits of fine sand, silt, and mud that taper away from the stream banks toward the backswamp. They form during flood stages because, as the stream overflows its banks, the velocity of the water is reduced, and silt is deposited. As the levees grow higher, the stream channel also rises, and thus the river can be higher than the surrounding floodplain.

(B) Flood stage of the Sevier River in central Utah. Note the natural levees which are expressed by vegetation growing on the high ground next to the river channel.

Figure 11.25
A braided stream pattern commonly results if a river is supplied with more sediment than it can carry. Deposition occurs, causing the river to develop new channels.

Figure 10.17 Alluvial fans develop where the gradient of a stream changes abruptly from steep to flat. Such a situation exists in Death Valley, California, where streams emerge from the mountains into a flat basin. As a result, Death Valley has many large alluvial fans. (Photo by Michael Collier)

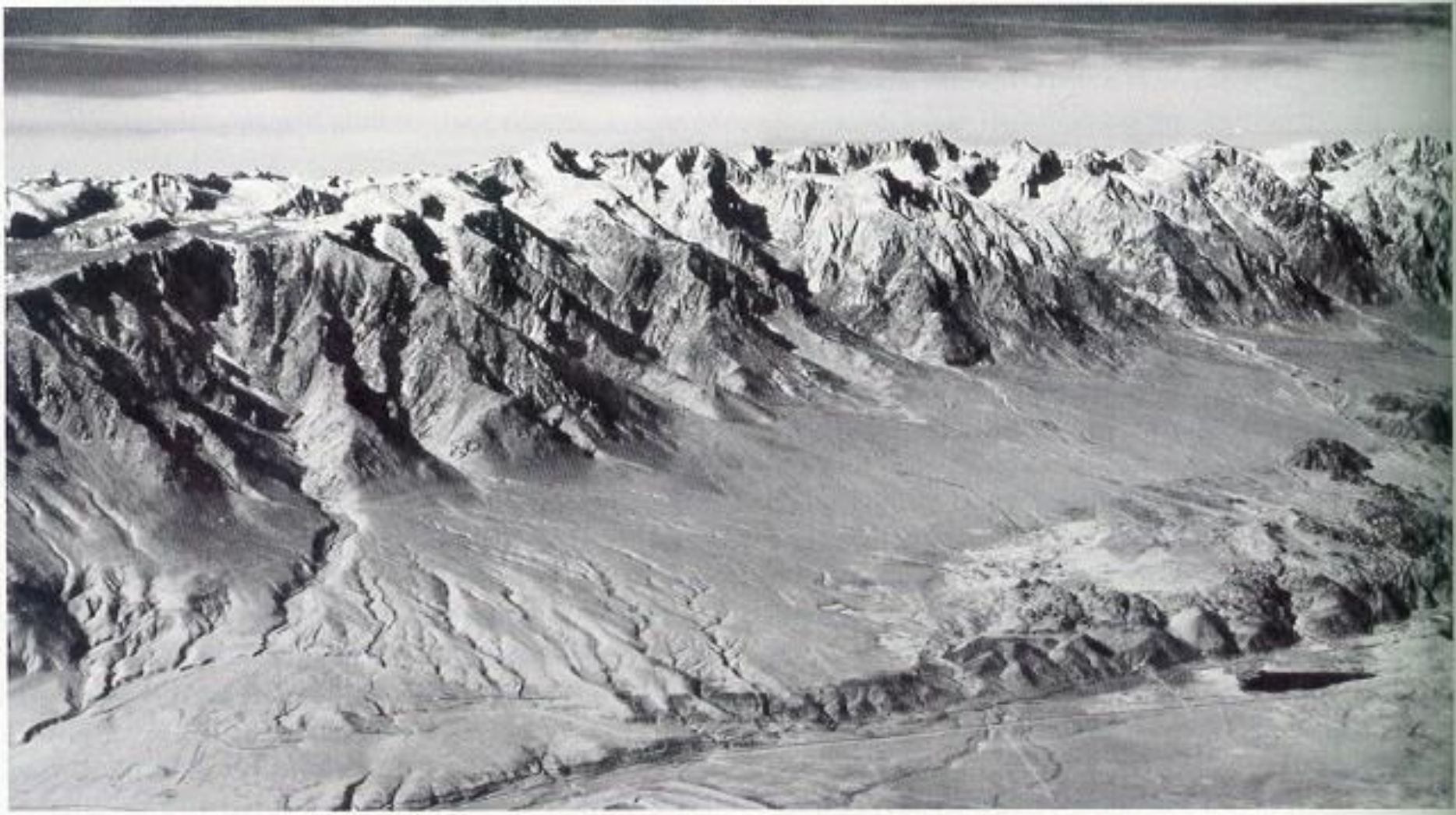


Figure 11.33
Alluvial slopes develop as fans grow and merge together. This photograph of part of the Sierra Nevadas shows large alluvial slopes, which cover much of the dry basin.

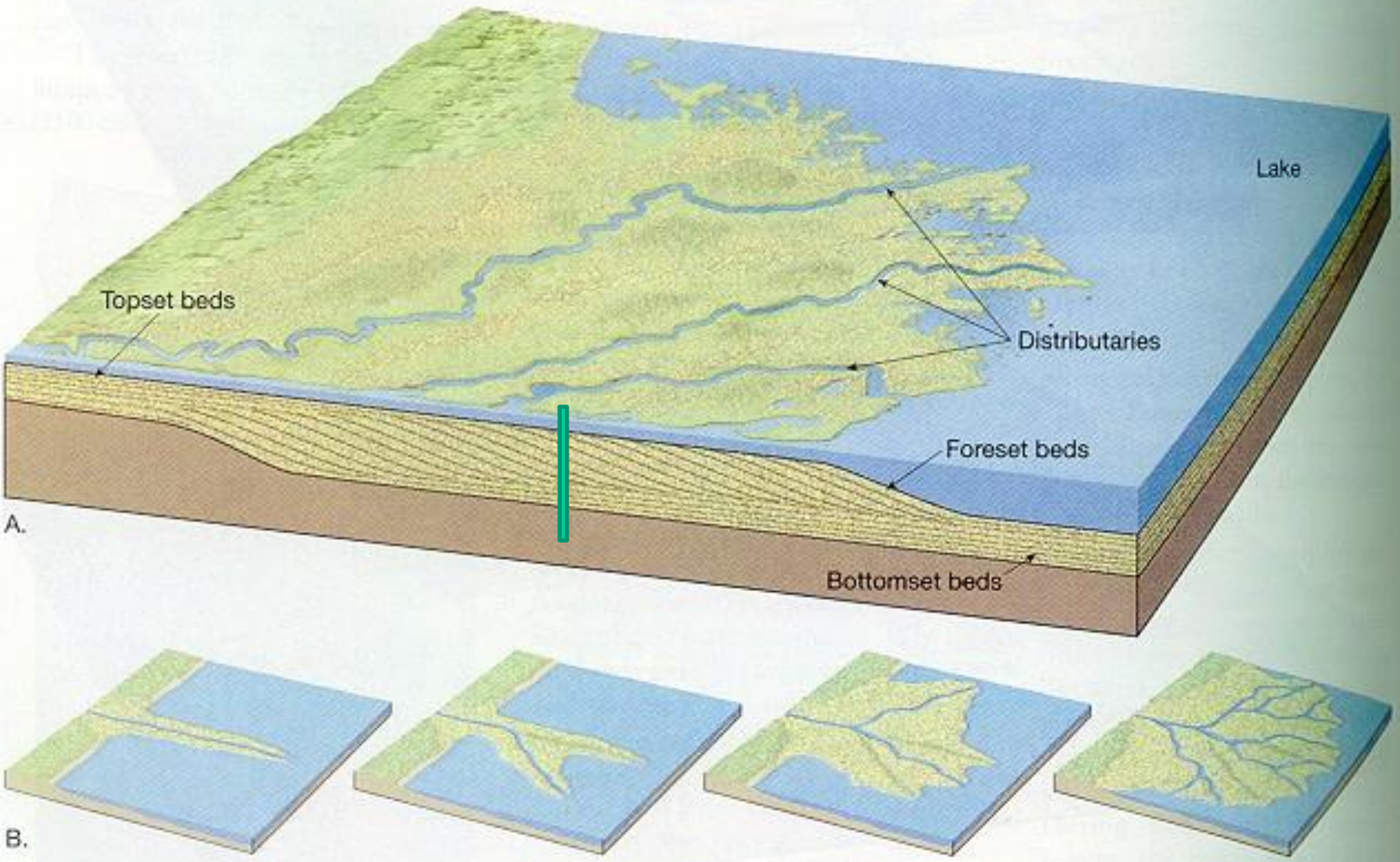
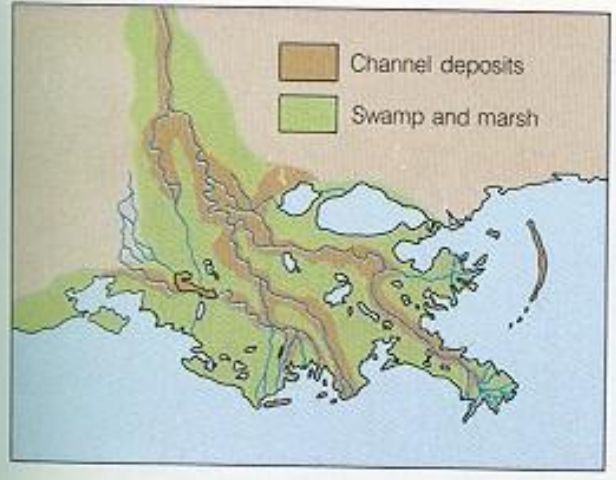
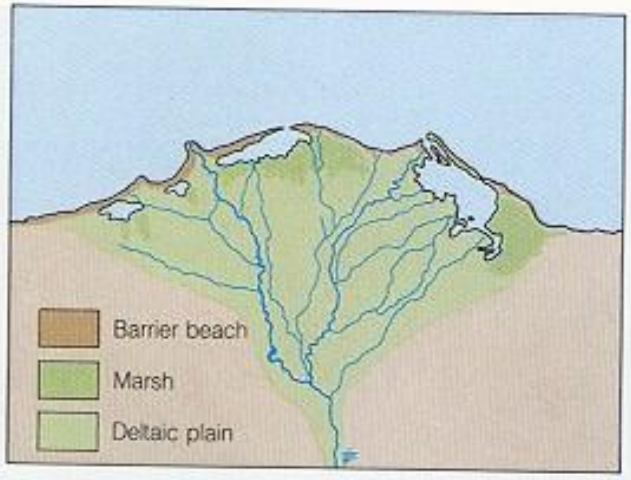


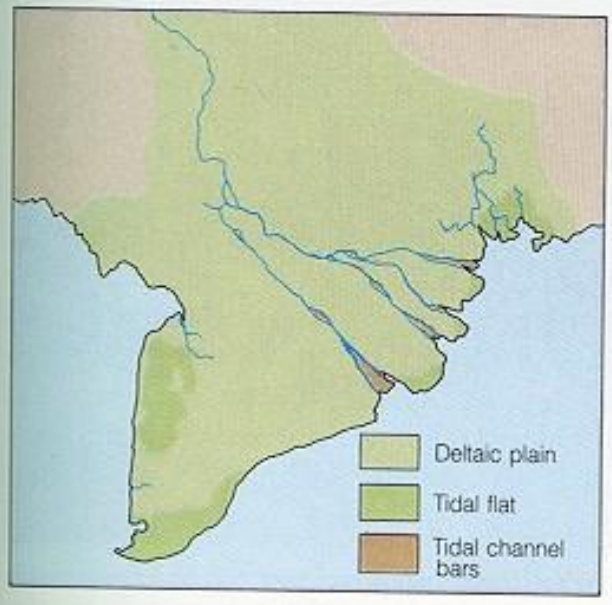
Figure 10.18 **A.** Structure of a simple delta that forms in the relatively quiet waters of a lake. **B.** Growth of a simple delta. As a stream extends its channel, the gradient is reduced. Frequently, during flood stage the river is diverted to a higher-gradient route, forming a new distributary. Old abandoned distributaries are gradually invaded by aquatic vegetation and fill with sediment. (After Ward's Natural Science Establishment, Inc., Rochester, N.Y.)



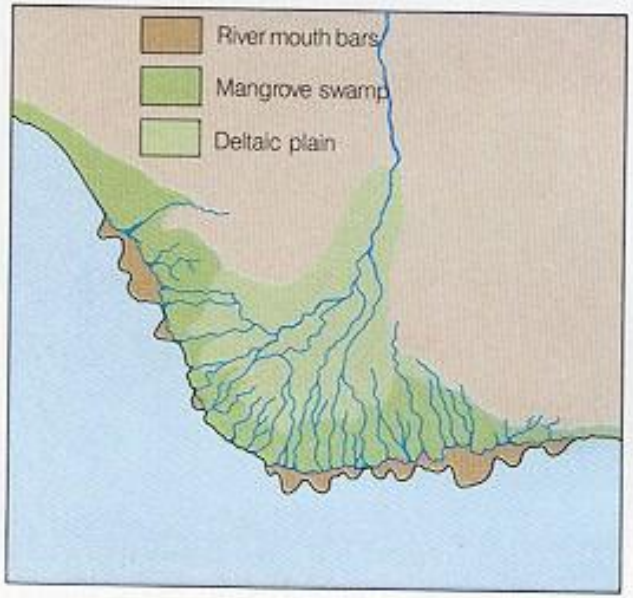
(A) The Mississippi Delta is dominated by fluvial processes, which produce a bird-foot extension.



(B) The Nile Delta is dominated by wave action, which produces an arcuate delta front.



(C) The Mekong Delta is dominated by tidal forces, which produce wide distributary channels.



(D) The Niger Delta has formed where stream deposition, wave action, and tidal forces are about equal. An arcuate delta front and wide distributary channels are thus produced.

Figure 11.31
The shape of a delta depends on the balance between fluvial and marine processes.

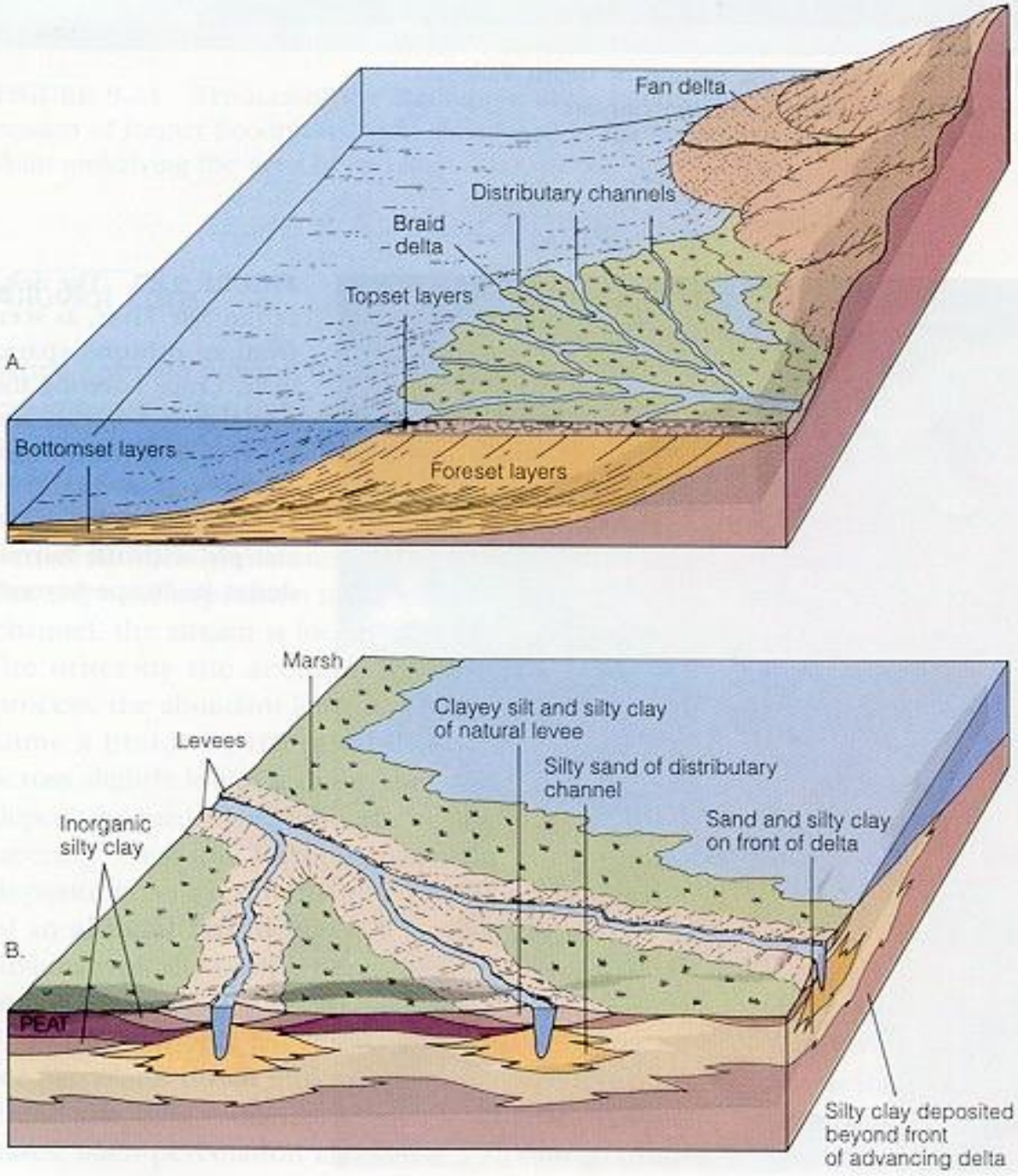


FIGURE 9.28 Main features of deltas. A. A braid delta built into a lake displays topset, foreset, and bottomset layers. A nearby fan delta is an alluvial fan that is building out into the body of water. B. Part of a large fine-grained delta built into the sea shows the intertonguing relationship of coarse channel deposits and finer sediments deposited on the delta front and beyond.