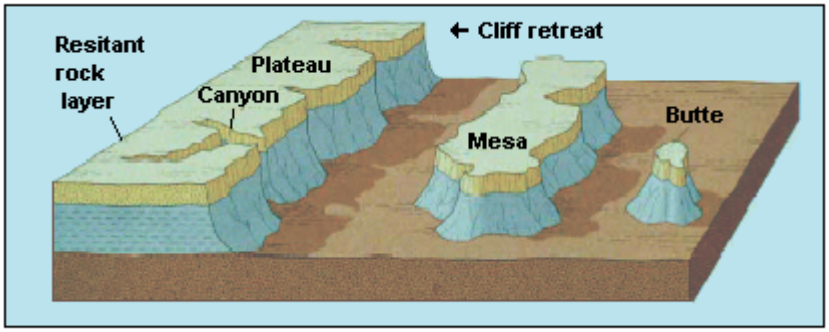
ARID-CLIMATE LANDSCAPES

EROSIONAL /TRANSPORTATION AGENTS:	
Running water	Present only after infrequent cloudbursts; flash floods. Intermittent streams with braided channels
Wind	does not move much material

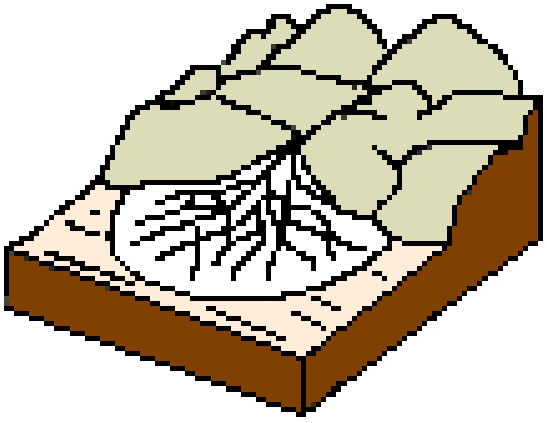
Arid regions are characterized by	
Sparse vegetation	Mechanical weathering predominates.
Little water (< 25 cm annual rainfall)	Sedimentary particles tend to be coarser
Thin soils	Slopes are typically steeper.
Frequent strong winds	
Sharp angular landforms (minimal chemical weathering	

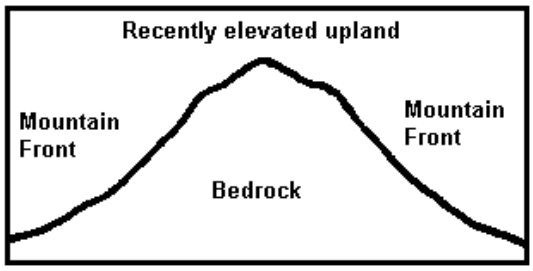
EROSIONAL LANDFORMS (carved by running water)	
BRAIDED STREAM CHANNELS	
DEEP CANYONS	With near vertical walls.
Features found in areas with nearly horizontal rock layers	
PLATEAUS	Relatively flat upland areas.
MESAS	Relatively flat upland bounded by cliffs. It is wider than its high.
BUTTES	Smaller flat upland areas. More or less as wide as they are high.
MONUMENTS (or **SPIRES**)	Slender features much higher than they are wide.

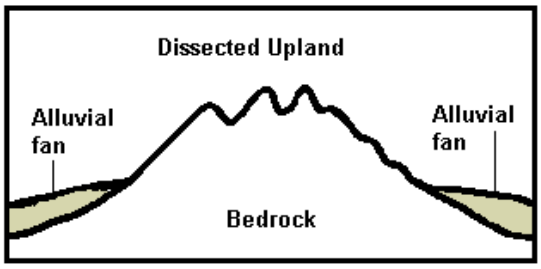


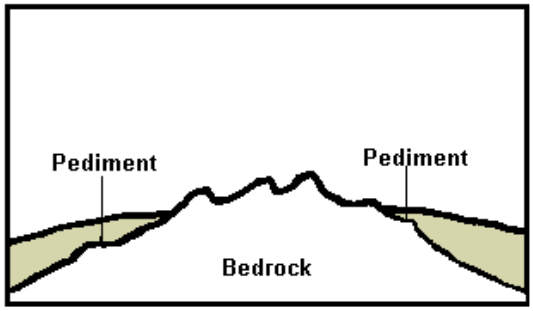
EROSIONAL LANDFORMS	
Features found in areas with inclined rock layer of different erosional resistance.	
MOUNTAIN FRONT	A sharp break in slope from the mountain
PIEDMONT	Gentle valley ward slope from the mountain front. It consist of the pediment and the bajada.
BAJADA	A continuous apron of debris along the foot of a mountain range. Forms when individual alluvial fans merge.
PEDIMENT	Nearly flat, gently sloping surface eroded into bedrock, commonly forms along the mountain front
INSELBERG	Erosional remnants

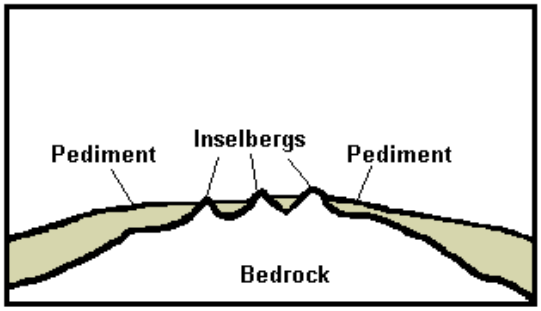
DEPOSITIONAL FEATURES	
WATER DEPOSITS	
BRAIDED STREAMS DEPOSITS	Stream with shallow channel in **coarse alluvium** carrying multiple threads of fast flow that subdivide and rejoin repeatedly and continually shift in position
ALLUVIAL FAN	A fan of sediment that forms at the mouth of a canyon. It's several km across and rises a few hundreds of m above the surrounding valley floor
BAJADA	Broad depositional surface formed by merging alluvial fans gently sloping apron of sediments along the mountain front
PLAYA LAKE	An intermittently wet lakebed. These areas form evaporite deposits of different salts.
PLAYA	Dry lakebed

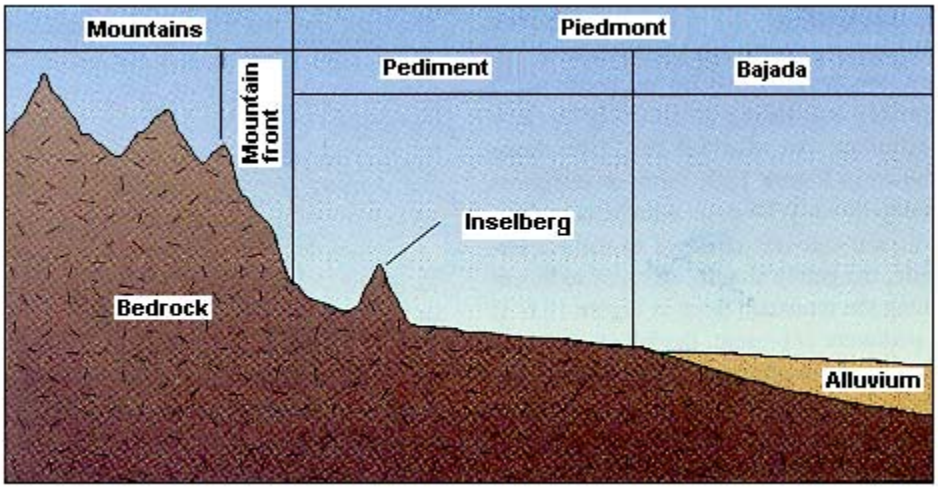


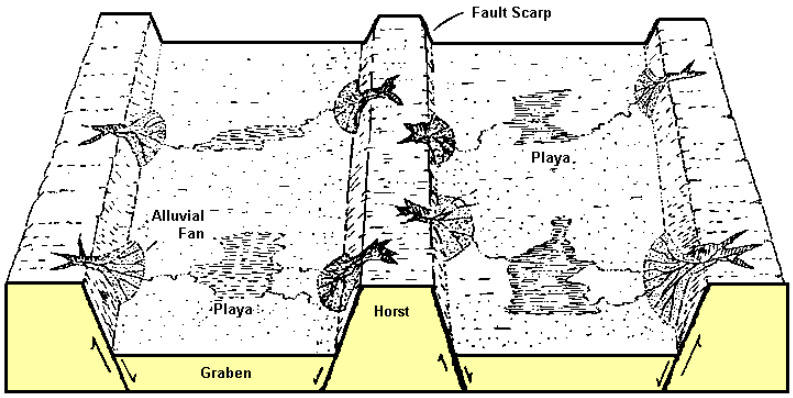

Recently elevated upland
Mountain Front
Mountain Front
Bedrock


Dissected Upland
Alluvial fan
Alluvial fan
Bedrock

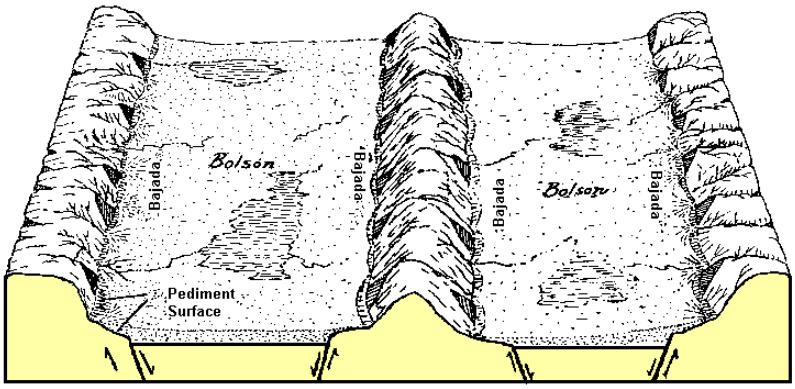

Pediment
Pediment
Bedrock


Pediment
Inselbergs
Pediment
Bedrock

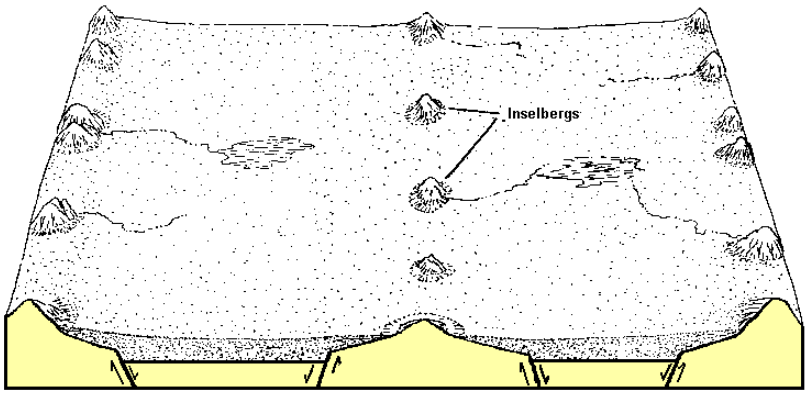

Mountains
Piedmont
Pediment
Bajada
Mountain front
Inselberg
Bedrock
Alluvium



INITIAL STAGE

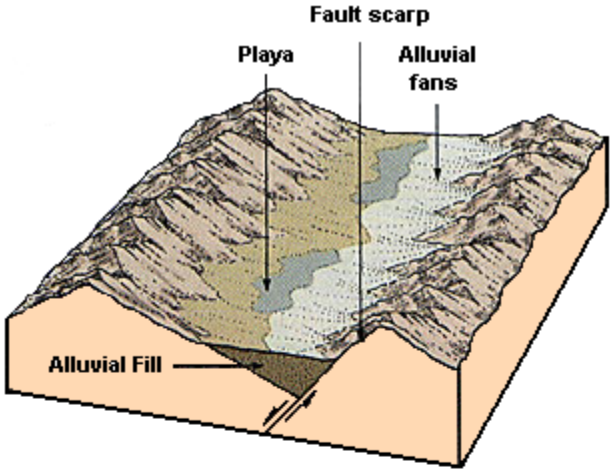


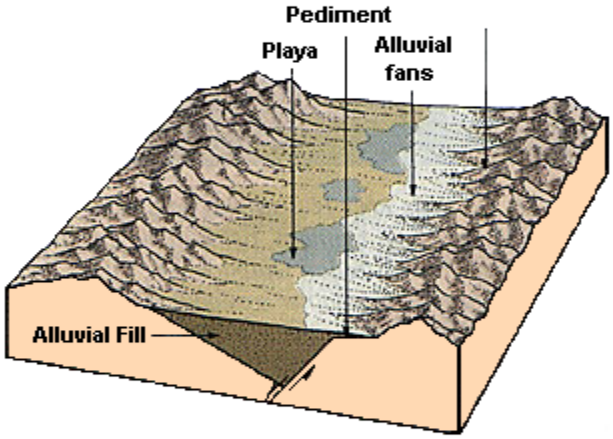
MIDDLE STAGE

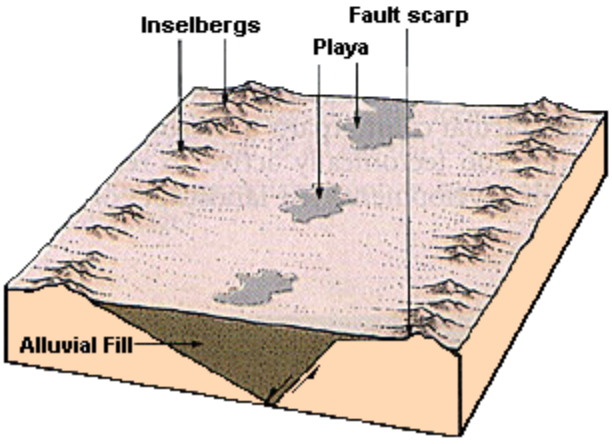


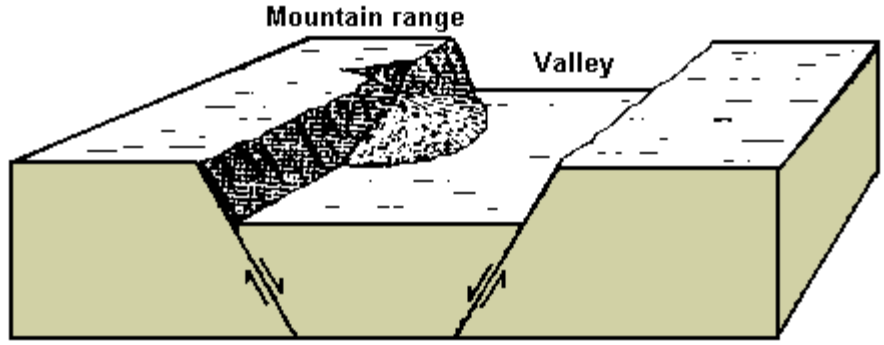
LATE STAGE

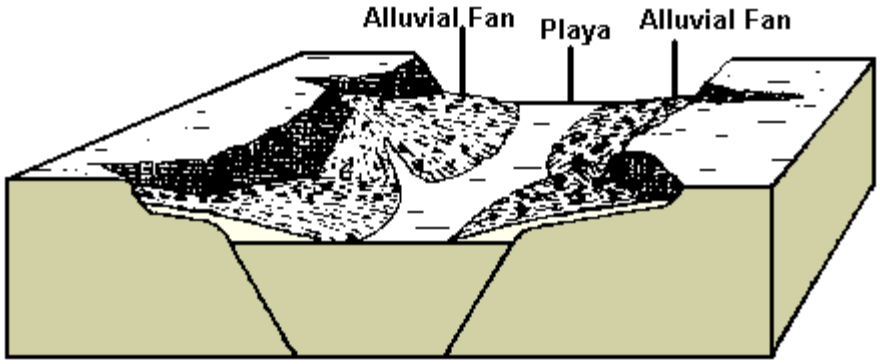
Arid region erosional cycle on block faulted terrain

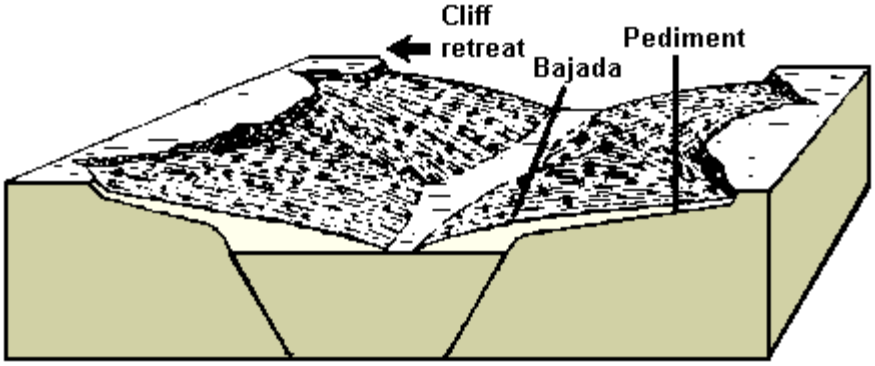

Fault scarp
Playa
Alluvial fans
Alluvial Fill

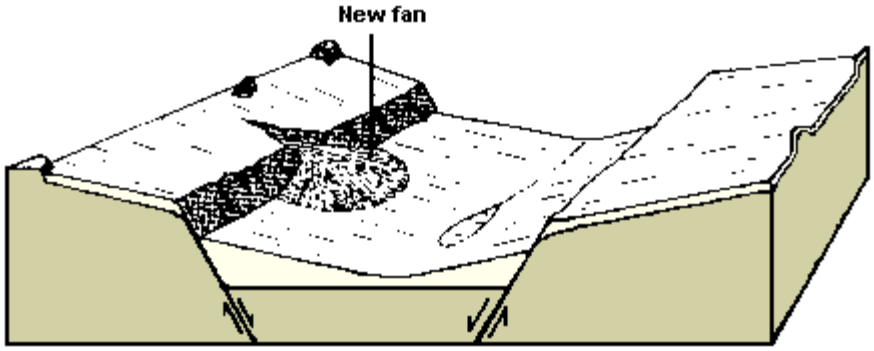

Pediment
Playa
Alluvial fans
Alluvial Fill


Inselbergs
Fault scarp
Playa
Alluvial Fill









Renewed fault movement can allow thick sediment sequence to fill valley

WIND DEPOSITS			
SAND DUNES	Mounds and/or ridges of sand deposited by the wind. Most sand dunes are asymmetrical in cross section, with a gentle slope facing the wind and a steeper slope on the downwind side (slip face). The shape of dunes are largely controlled by wind velocity and direction (constant or shifting); sand supply; distribution of vegetation (if any) Migrate downwind.		
TYPES			
	SHAPE /SIZE /	**CHARACTERISTICS**	
BARCHAN (most common)	Crescent shaped dunes. They move across bare rock surfaces. Size: 30 m (100 ft) high; 305 m (1000 ft) from point to point 7.5 –15 m/year (25-50 ft/year)	Horns pointing downwind	Form in areas of limited sand supply of sand
TRANSVERSE	Asymmetrical relatively straight ridge (Resemble waves on an ocean) Steep lee face faces downwind 200 m high; 1-3 km wide; 100 km or more in length	At right angles (perpendicular) to the wind direction	Forms in areas with steady winds and a large supply of sand
PARABOLIC	Curving arc. Commonly form around a blowout The arms of the dune are stabilized by vegetation. 30 m high 300 m wide	Horns pointing upwind	Form in areas with moderate winds large supply of sand and some vegetation
LONGITUDINAL (SEIF) (largest)	Long, slightly sinuous, ridge 90 m (300 ft) high 95 km (60 mi) long avg. 3 m high; 60 m long	Aligned parallel to the prevailing wind direction	Results from strong but slightly varying winds from the same general direction

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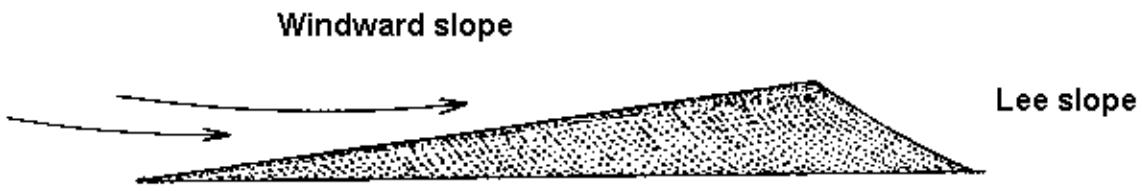
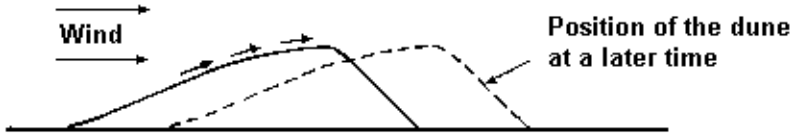


Cross section of a barchan, parabolic or transverse dune.



The wind moves individual grains along the surface of the dune until they fall off the steep slope.