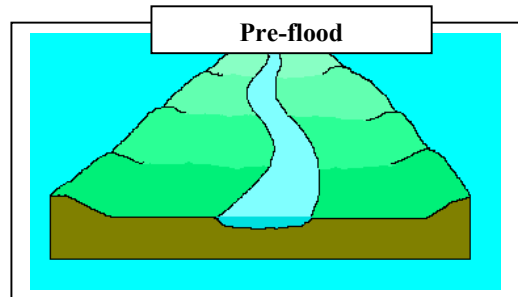


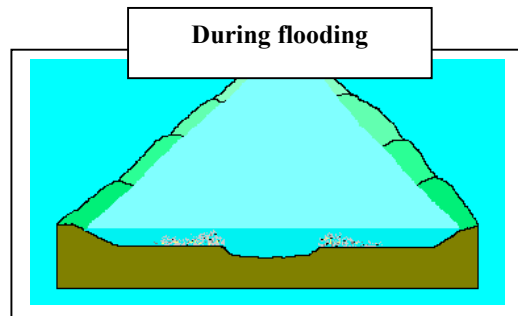
Levees

Levees are landforms (features) created by deposition. A levee is a long narrow ridge of material running along the banks of a river. This material will be composed of larger particles, sometimes as large as boulders, near the bank and finer material further away from the bank. Levees form as a result of flooding. They are found in the lower course of a river.

Before the formation of a levee, a river meanders through the wide, flat floodplain of the rivers lower course. The gradient of the river in this stage is quite gentle. The channel shape is inefficient. This means the river is shallow relative to its width. As a result of this the river experiences a high degree of friction. The river loses energy easily and bedload carried from the mature and youthful stage is deposited on the bed of the river. The shallow channel also means that during periods of increased rainfall, or during spring snowmelt, the water level in the river can rise significantly and cause flooding.



When flooding occurs, water will pour over the banks of the river. At this stage the water will be carrying suspended material from the river. Depending on the volume of water contributing to the flood this material can be as significant as boulders or as small as alluvium (fine silt). At bank-full height (the top of the river channel) the water will begin to spread over the rivers floodplain. At this point the water will experience friction almost as if the floodplain has become the new channel. Deposition will occur with heavier material deposited first followed by finer material further away from the river banks. Over a period of successive flooding, long narrow ridges of material will build up along the banks of the river. These ridges are called levees.



(Very destructive floods will prevent material from being deposited until the flood begins to recede (ease away). In this case, large boulders are deposited far away from the banks of the river and levees are less likely to form).

After a period of flooding, the volume of water in the river channel will return to pre-flood volumes. However a layer of bedload carried from the mature and youthful stages will line the bed of the river. This results in the water level in the channel being higher than before the flood. In some cases the water level may be above the original bank-full height. In his case water in the channel is now held in place by the levees. If a severe flood event occurs these levees may burst and cause serious damage to surrounding settlements that depended on the levees for protection. Good examples of levees can be found along the Mississippi River in USA.

