<u>Tabular Cross-stratification</u>: This type of cross-stratified set is broad in lateral dimensions relative to set thickness (Figure 4). Bounding surfaces of sets are planar and parallel. Individual cross-strata terminate at a high angle against the lower bounding surface of sets, which range in thickness from a few 10's of cm to a m or more and may be traced laterally for several meters.

Some geologists recognize wedge-shaped cross-stratification as a sub-class of tabular cross-stratification. Here, the bounding surfaces are also planar but converge when traced laterally, creating wedge-shaped sets (Figure 5).

<u>Trough Cross-stratification</u>: Cross-stratified sets fill elongate erosional scour troughs which are concave-up and elongated in a downstream direction. Individual cross-strata within the sets are curved and scoop-shaped, and are tangential to the bottom erosional surface of the sets. Viewed in section parallel with trough elongation, the sets have planar but converging boundaries (Figure 6); viewed in perpendicular section, they have concave-up dish shapes. These sets range in thickness in dm, and are meters or tens of meters long.

<u>Flaser Bedding</u>: Where the lithology of the sediment varies from sand to mud, mud is concentrated as small drapes between sets of cross-stratified sand (Figure 7). This is called flaser bedding. The mud may constitute any part of the rock, but where it so dominates that the same sets "float" within the mud, the structure is called lenticular bedding. Flaser bedding is characteristic of tidal flats where sand is deposited in high energy conditions of maximum tidal flow, and mud is deposited in slack water periods of maximum high and low water stand.

<u>Herringbone Cross-stratification</u>: This term describes cross-stratified units where adjacent sets have cross-strata inclined in opposite directions. Such a situation is created by reversing flow directions, such as typify tidal settings for example (Figure 8).

<u>Climbing-Ripple Cross-stratification</u>: Also called ripple-drift cross-lamination. In cross-stratified sediments where small-scale trough sets are not truncated above by other trough sets, climbing-ripple cross-lamination is perserved (Figure 9). The trough sets may be arranged in some orderly fashion such as in Figure 9a, or they may be completely preserved as a sequence of vertically superposed, laterally persistent sets with undulating set boundaries (Figure 9b).

**(d) Hummocky cross stratification**

Hummocky cross stratification consists of broadly undulating sets of rather gently dipping (generally less than 10°, although values may reach 15°) laminae composed of coarse silt to fine sand (Fig. 1.26). Dip directions are scattered and of no known use in evaluating paleoflow. Laminae parallel the lower set boundary but are truncated by the upper set boundary. They commonly show progressive thickening in the dip direction. Although hummocky cross stratification has not been observed in modern deposits or in the laboratory, the association with fossiliferous marine shale and wave ripples, especially at the top of hummocky cosets, suggests deposition on a marine shelf. This structure is thought to form by sedimentation of suspended material over low hummocks and shallow swales produced by large storm waves. (From Lindholm 1987)