



Figure 14. Formation of a track. Notice how the structure of the foot and weight of the animal deform sedimentary layers, leaving a distinctive kind of print in the different layers.

BIOGENIC SEDIMENTARY STRUCTURES

Tracks and Trails

A variety of irregular grooves and impressions found on bedding plane surfaces arise from the activities of bottom-dwelling organisms, and are called tracks and trails (Figure 14). These structures are classified as trace fossils by paleontologists (distinct from body fossils comprising skeletized remains only) inasmuch as they are the traces of the feeding, locomotory, scavenging, resting, and reproductive behavior of living organisms. The formation and preservation of a track requires 1) that the sediment on the seafloor (or land surface) be relatively cohesive so that the depression doesn't collapse upon itself, and 2) that the track be buried fairly quickly so that wave and current action doesn't erase it. The best tracks and trails are thus found in muddy sediments from quiet water environments.

Bioturbation

Organisms that penetrate sedimentary layers produce three-dimensional trace fossils called bioturbation. Distinct burrow structures are produced by organisms that prefer to excavate or construct tubes down into the sediment. These include many shrimp and worms that live in the sediment as a means of escape from surface-dwelling predators (but feed from the overlying waters) and worms that actually ingest sediment (Figures 15 and 16). More generalized disruption of primary laminations results from organisms that move freely through the sediment. These include sediment-ingesting worms and clams, and predaceous snails in search of burrowing prey (Figure 17). Nestling species, such as the crab *Corystes* (Figure 18), can also cause generalized bioturbation of sediment even though they feed from the overlying water.