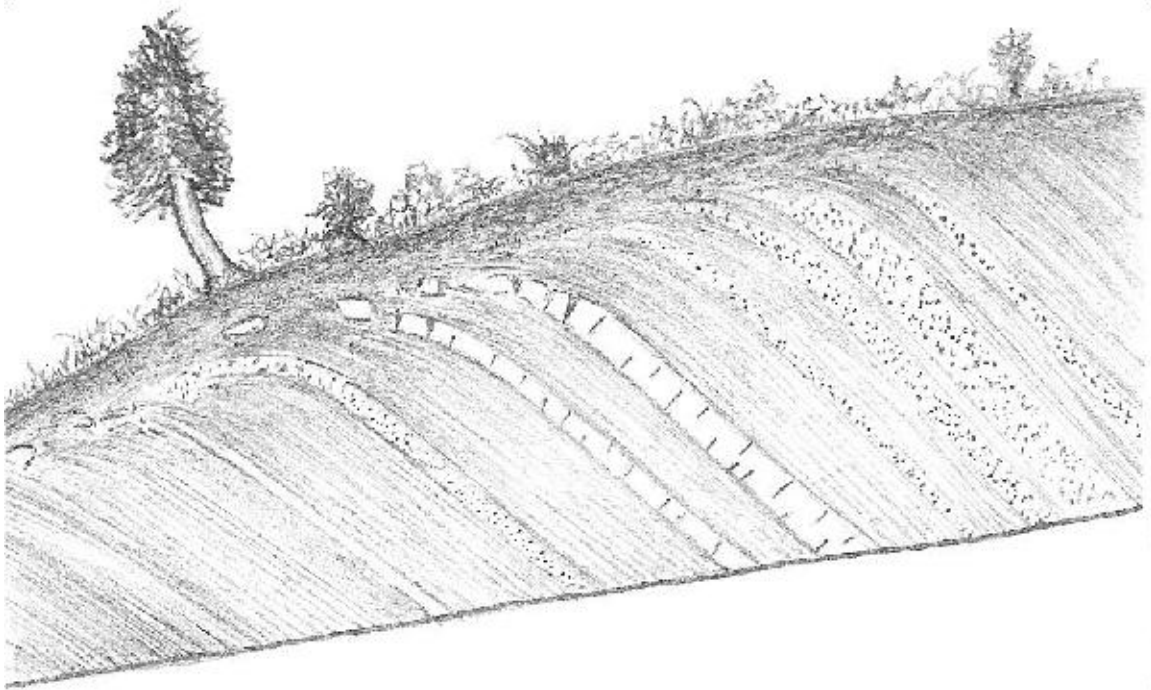


Soil Creep

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Technically, the term creep means gradual deformation or displacement occurring in response to an applied stress. Soil creep means gradual deformation resulting in downslope displacement of soil on a slope in response to the force of gravity.

Soil creep occurs on natural slopes, and it occurs on graded slopes. It occurs on all slopes composed or covered with soil or rock so weakened as a result of weathering that it has the consistency of soil. The rate at which creep occurs and the depth to which it occurs depends upon such variable factors as the inclination of the slope, the depth and physical properties of the soil and soil-like rock present on the slope, and the weather.

The magnitude of downslope directed stress induced by the force of gravity increases as the inclination of a slope increases, and it increases as the depth of materials weak enough to be susceptible to creep increases. It increases as water permeates susceptible materials, and water reduces their capacity to resist.

Water also causes clays included in soils to swell. Clayey soils on slopes tend to expand outward as they absorb water and to shrink downward as they dry. Roots of plants on slopes force grains of soil apart as they grow, and openings created by roots collapse when roots decay. Animals that burrow (like worms and gophers) move soil, and they do not put it back where they found it. Holes they dig eventually collapse.

The net effect of all these processes is that soil is gradually moved downslope. The effect is similar to the slow flow of a very viscous fluid.

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