

# Sill Encyclopedia Article

## Sill

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# Sill

A sill is a formation of igneous **rock** found in features such as mesas, hogbacks, and cuestas. Although sills can become exposed, sills are formed underground and are thus composed of plutonic **igneous rocks**. Sills are an intrusive rock formation. Intrusive formations such as dikes and sills are formed from **magma** that solidifies beneath the Earth's surface and then intrudes into the overlying host or **country rock**.

Sills are distinguishable from the similarly formed dikes and dome forming laccoliths because sills are horizontal in orientation to the surface. Accordingly, sills are a horizontal intrusion.

Sills are sheet-like or tabular because the magma intrusion moves or intrudes horizontally before solidifying. Sills are characterized as concordant intrusive contacts. Because sills are an intrusive rock formation in contact with the host or country rock in the horizontal plane, they are often parallel to foliation or **bedding** planes (e.g., parallel to underlying sedimentary bedding planes). Sills form as rising magma encounters vertical resistance from host rock. The upwelling magma then spreads out in the horizontal plane into **area** of lower resistance to form sheet-like layers of rock.

Sill texture is a function of the time it takes for the magma to cool and solidify. Sills range from **aphanitic** to phaneritic in texture. In general, the longer the time to cool, the greater the extent and size of crystal formation. If a sill cools quickly, the texture is usually smooth and mineral **crystals** are not visible to the naked eye (aphanitic in texture). If conditions in the surrounding host rock are such that the magma cools over a long period of time, large visible crystals form a phaneritic texture.

When sills come to overlie sedimentary basins, the sills can act as horizontal obstructions that cap traps or reservoirs containing hydrocarbon **fuels**.

## See Also

Dike; Petroleum Detection; Pluton and Plutonic Bodies; Stratigraphy