

I merely give this instance to show what I mean by denudation produced by running water. At one time the channel did not exist. The river has cut it out, and in doing so, strata—some of them formerly one hundred and sixty feet beneath the surface—*have been exposed by denudation*. Possible, but very uncertain calculations, show that to form this gorge a period at the least of something like thirty-five thousand years has been required. This is an important instance, and it is similar to many other cases constantly before our eyes, on a smaller scale, which rarely strike the ordinary observer.

Refer to fig. 6, and suppose that we have different strata, 1, 2, 3, and 4, lying horizontally one above the other, together forming a mass several hundreds of feet in thickness. The running water of a brook

FIG. 6.



or river by degrees wore away the rocks more in one place than another, so that the strata 3, 2, and 1, were *successively cut into* and exposed at the surface, and a valley in time is formed. This is the result of denudation.

Or to take a much larger instance. The strata that form the outer part of the crust of the Earth have, in many places, by the contraction of that crust due to cooling of the mass, been thrown into *anticlinal* and *synclinal* curves. A synclinal curve means that the curved strata are bent downwards as in 1, Fig. 7, an anticlinal curve that they bend upwards as in 2. The whole were originally deposited horizontally, con-