

or precedent to another, and to reduce those periods, or any one of them, to the ordinary measures of time, is beyond our reach, simply because the duration of human experience and observation is too short to furnish a standard.

2. The whole series of strata, from the earliest of them to the present surface of the globe, exhibits a body of evidence in favour of our doctrine. Every stratum consists of a mass of earthy matters which once formed the substance of rocks on elevated land; partially excepting the limestones, for a reason to be presently mentioned. Those portions of the rocks have been separated from their parent masses, worn down, comminuted, transported often to great distances by the force of water, deposited, consolidated, elevated, and hardened. Operations of this kind have been repeated many times, homogeneously and heterogeneously as to the mineralogical constitution of the masses: but the thickness, the lamination, the joints and cleavage, and the imbedded remains of animal and vegetable beings, cannot be contemplated with due attention, without producing a conviction stronger than words can express, of periods of time amazing and overwhelming to the mind. The most prominent instances may be mentioned, and we will begin with the earliest.

The first appearance of stratification is in the rock called Gneiss. This is composed of the same materials as Granite, on the irregular outline of which it rests. But, whereas in Granite the component ingredients are not only distinct but preserve their crystalline figure, in Gneiss they are indeed perfectly distinguishable, but their edges and corners are rounded off, and their disposition with regard to each other may be called an arrangement lengthwise and leaf-like. Now, this is precisely that state which would be produced by an action upon the granite surface, whether unaltered or somewhat disintegrated, of wearing-off, removal, rolling about, diffusion in water, subsiding by its own weight, settlement at the bottom, and finally disposition by the straight direction of a current: in a word, it is that state which those materials would necessarily acquire, in the way of being worn and arranged by water working upon them, through a long space of time; also being further acted upon by the heat transmitted from below. But, *how long* was *that portion of time*, it would be too daring to conjecture. We know, from the ordinary way of such a process, which, in many cases can be observed and watched, that it would be *extremely* slow. The trituration, depositing, and permanent fixation of a very few inches, would be a liberal allowance for a hundred years. What then is the average thickness of the gneissic rocks, in Scotland, Ireland, and other countries where they have been brought up to view? On account of the intervention of